FOUNDED IN 1856

RAILWAY AGE

FEBRUARY 26, 1949

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WHAT YOUR ROLLER BEARINGS SHOULD HAVE FOR TODAY'S TOUGH RAILROAD SERVICE

The following qualities and characteristics are necessary for the most efficient performance, greatest endurance and longest life in roller bearings for all types of railroad equipment. To meet today's tough operating conditions your roller bearings should have *all*, not merely *some* of them. Here they are:

1. Inherent ability to carry radial, thrust and combined loads with low frictional resistance and without auxiliary supports such as separate thrust bearings or plates.
2. True rolling motion between rollers and races; full line contact between rollers and races.
3. Positive alignment between rollers and races.
4. Adjustability to facilitate assembly and compensate for any slight wear that may occur after prolonged service.
5. Bearing and box assemblies fixed on axles at all times.
6. Positive and accurate control of lateral movement of the axle.
7. Suitability for use with all types of brakes.
8. Made of the finest steel available, with every heat "ear marked" for a particular purpose.
9. Infrequent lubrication and maintenance attention.
10. Application requiring least possible deviation from standard truck parts.

These requirements apply not only to the bearing itself, but also to the housing or box in which the bearing is contained, and the method of attachment to the axle.

Meeting all these requirements with a dual purpose bearing—both radial and thrust loads—necessitated a long series of experiments and tests under every conceivable condition. Out of these experiments and tests grew a mass of evidence regarding the possibilities of Timken tapered roller bearings that since has been completely borne out by performance records under actual service operation.

THE TIMKEN ROLLER BEARING COMPANY
CANTON 6, OHIO · CABLE ADDRESS "TIMROSCO"

NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ◎ AND THRUST —◎— LOADS OR ANY COMBINATION —✳—

smooth, safe . . . air controlled operation

means . . . day-long efficiency

with the . . . ORTON LOCOMOTIVE CRANE

• Effortless, fingertip control of loads up to 500,000* pounds by the operator of an Orton Crane is just one of the many reasons why Orton has nearly 2,000 satisfied customers.

• Orton *air control* permits smooth, *tireless* operation of clutches. The man in the *"driver's seat"* retains early morning efficiency all day long.

• The Orton operator has many safety features upon which to rely. A completely automatic spring-applied air-released boom-hoist brake *positively prevents* dropping the boom. An air-controlled limit switch *makes impossible* pulling the boom over backwards.

• Every Orton Crane is built with anti-friction bearings on all power shafts . . . Gears and shafts remain in permanent, rigid alignment throughout the life of the crane . . . An independent transmission with built-in reverse, built by Orton for crane work only, makes possible lowering of heavy loads *against compression of the engine* . . . Single-point adjustment, burn-proof V-type "Orcoin" block clutches can not get out of round. Overheating cannot hurt them.

Send for Catalog No. 77 for full details and roster of Orton world-wide users.

* Note deep, short-coupled car body on Orton Model 150 Locomotive Crane, illustrated. Most rigid car body of any locomotive crane built. Operator has clear view of load and path of swing at all times.

ORTON CRANE & SHOVEL COMPANY
608 South Dearborn Street, Chicago 5, Illinois

ORTON EXPERIENCE

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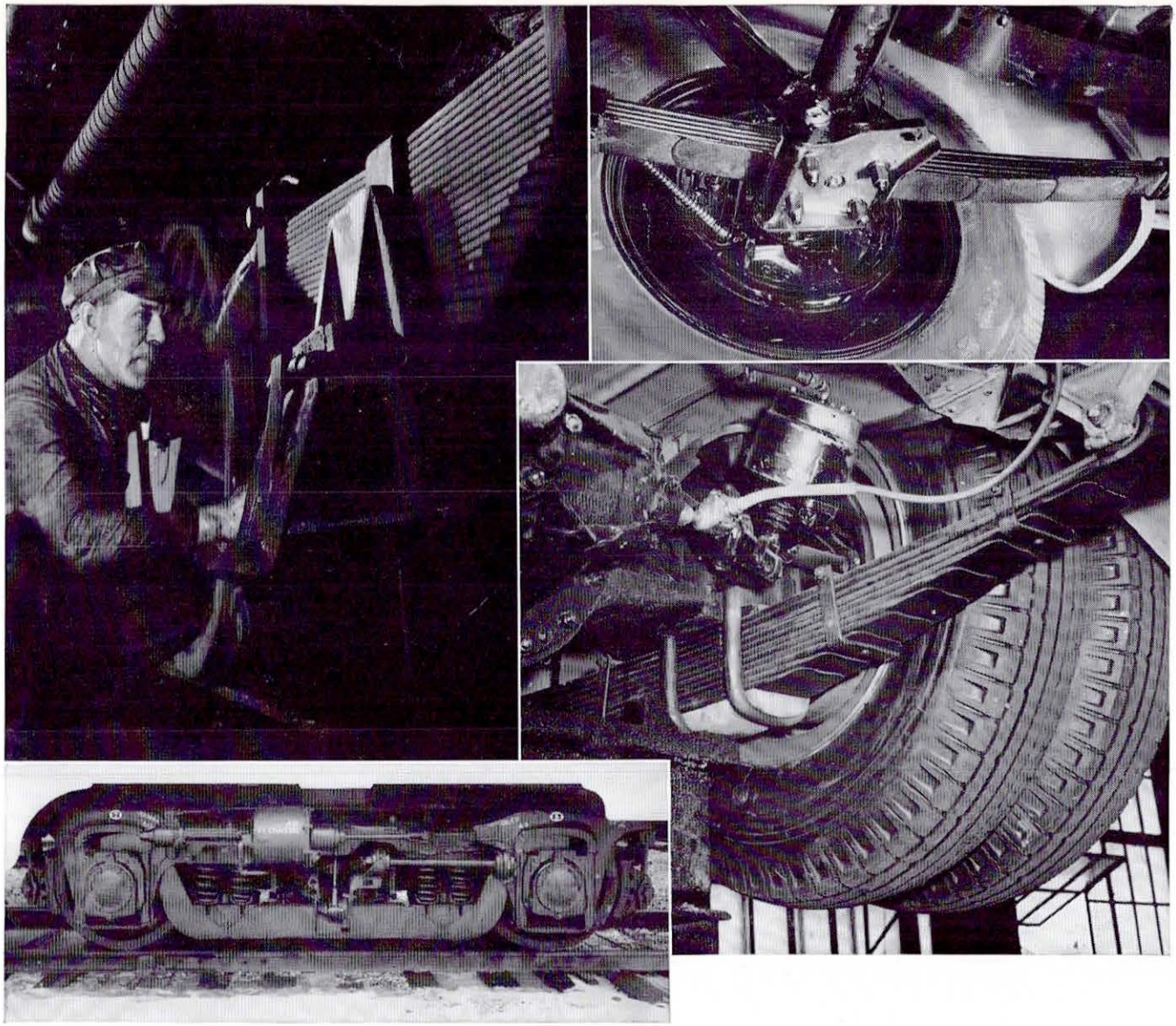


In SPRING STEELS size is an economical guide to analysis

Generally speaking, steels of medium or low alloy content are adequate for manufacturing springs of thin sections . . . conversely, steels of richer alloy content are usually essential for heavier springs. For example, it may be economical to make smaller springs from AISI grades 9255, 5150, or 4063; medium-weight springs from 6150, 8650, or 9260; and heavy-duty springs from 9262 or 8655.

The proper application of this principle requires a thorough study of the spring sizes and stresses to be encountered. It also calls for careful consideration of analyses and heat-treatments. Our metallurgists are familiar with all types of spring requirements and will gladly help you find an economical solution.

When you are in the market for high-quality alloy steels remember that Bethlehem manufactures all AISI grades as well as special steels.

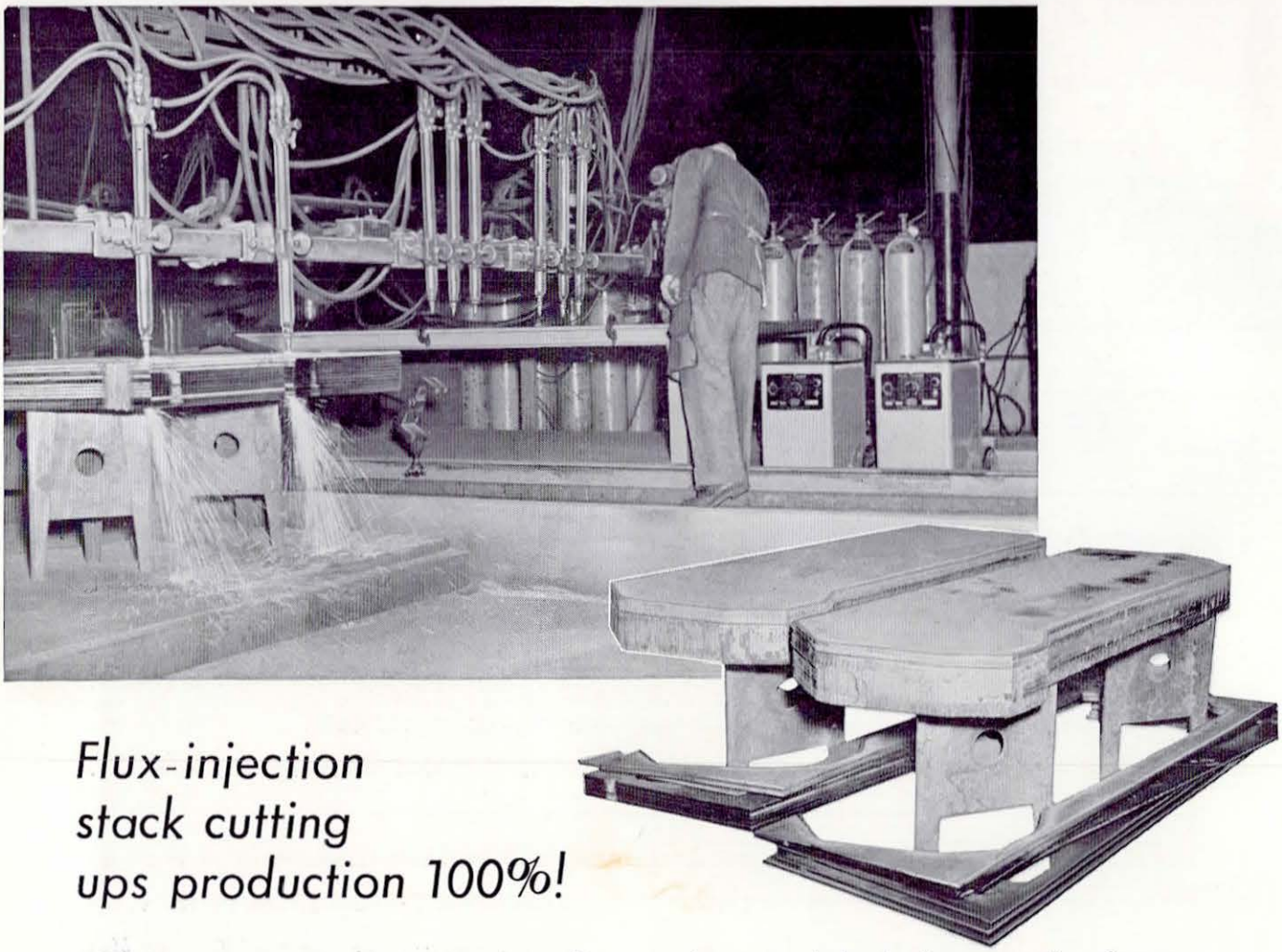
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

BETHLEHEM ALLOY STEELS

What's the best way... **to shape-cut car sheets?**



Flux-injection stack cutting ups production 100%!

Their long experience in serving American railroads enabled Airco Railroad Service Representatives to apply Airco's Flux-Injection Process to stack cutting or shaping of cross ridge, slope and end sheets plus various other parts in the shops of a prominent railroad.

As shown above, two stacks of twelve cross ridge sheets are being cut simultaneously using a dual torch setup — WITHOUT CLAMPING. This meant a tremendous saving of time, and pointed the way to production savings up to 100%. Further reduction in costs is obtained with the addition of extra torches to permit the simultaneous cutting of more than two stacks of sheets depending upon the size of the part to be shaped.

To illustrate the speed of operation, 91 lineal inches of plate must be cut to fashion a complete cross ridge sheet. This cutting process did the job in 18 minutes — or 5 inches per minute.

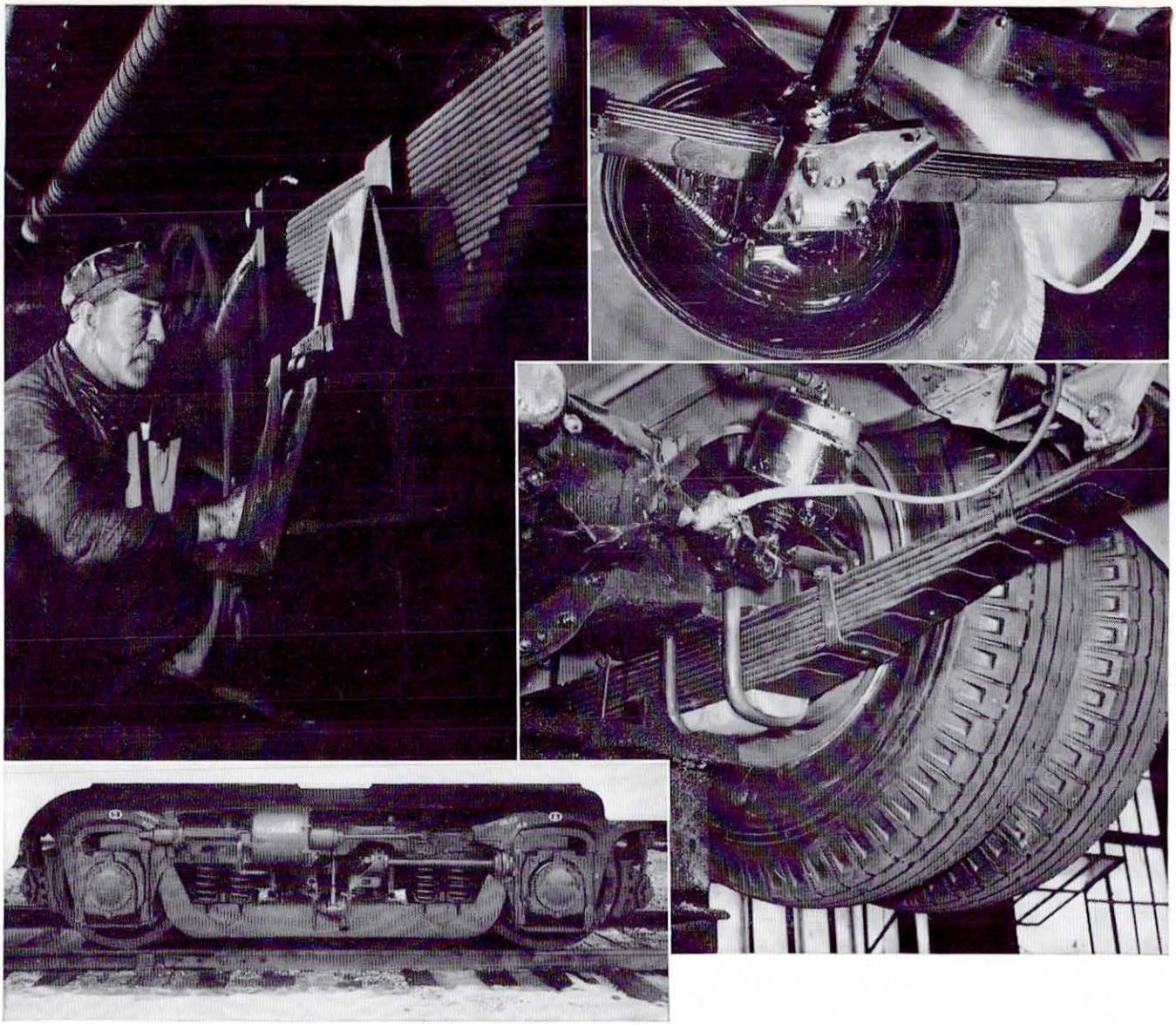
For details in Flux-Injection as applied to stack cutting of mild steel or the cutting of stainless steel, write your nearest Airco office. (In Texas: Magnolia Airco Gas Products Company. On West Coast: Air Reduction Pacific Company.)

Costs Come Down Under The Airco Plan

AIRCO AIR REDUCTION

Offices in Principal Cities

Headquarters for Oxygen, Acetylene and Other Gases... Carbide... Gas Cutting Machines... Gas Welding Apparatus and Supplies... Arc Welders, Electrodes and Accessories



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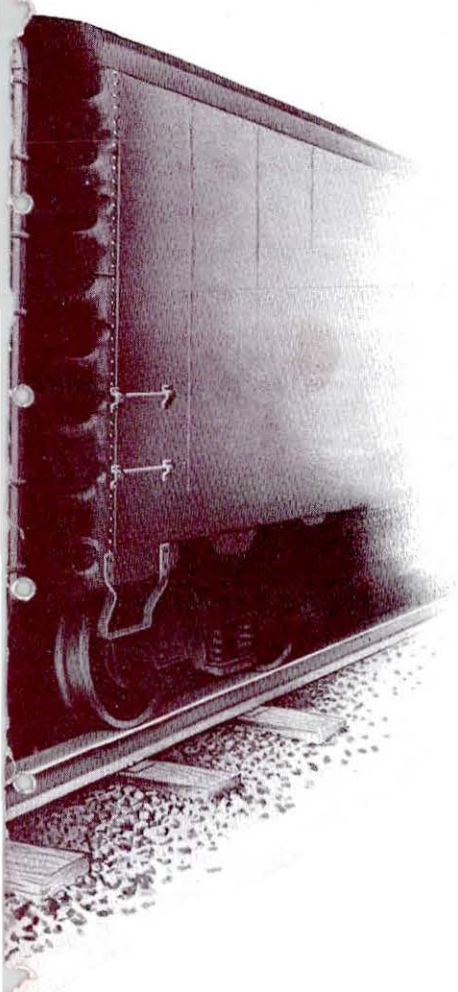
BETHLEHEM ALLOY STEELS

America's

"SUPER-Market" on Rails!



Don't get the wrong idea. Mrs. America still does her marketing at her favorite grocery.

But before she can fill her shopping list, thousands of freight cars first must *feed* every city...*stock* every store with staples, perishables, and delicacies.

Canned foods, for example—13,240,460 *tons* in one year! Bananas—1,186,340 *tons*...washing soaps—1,427,000 *tons*...vegetables—12,203,000 *tons* ...beverages—6,932,000 *tons!* Shipped in packages of every size, shape, and description—in boxes, barrels, bottles, and bulk!

Only the Railroads can ladle out that kind of tonnage day after day. Serve it up so fast...so fresh...so thriftily!

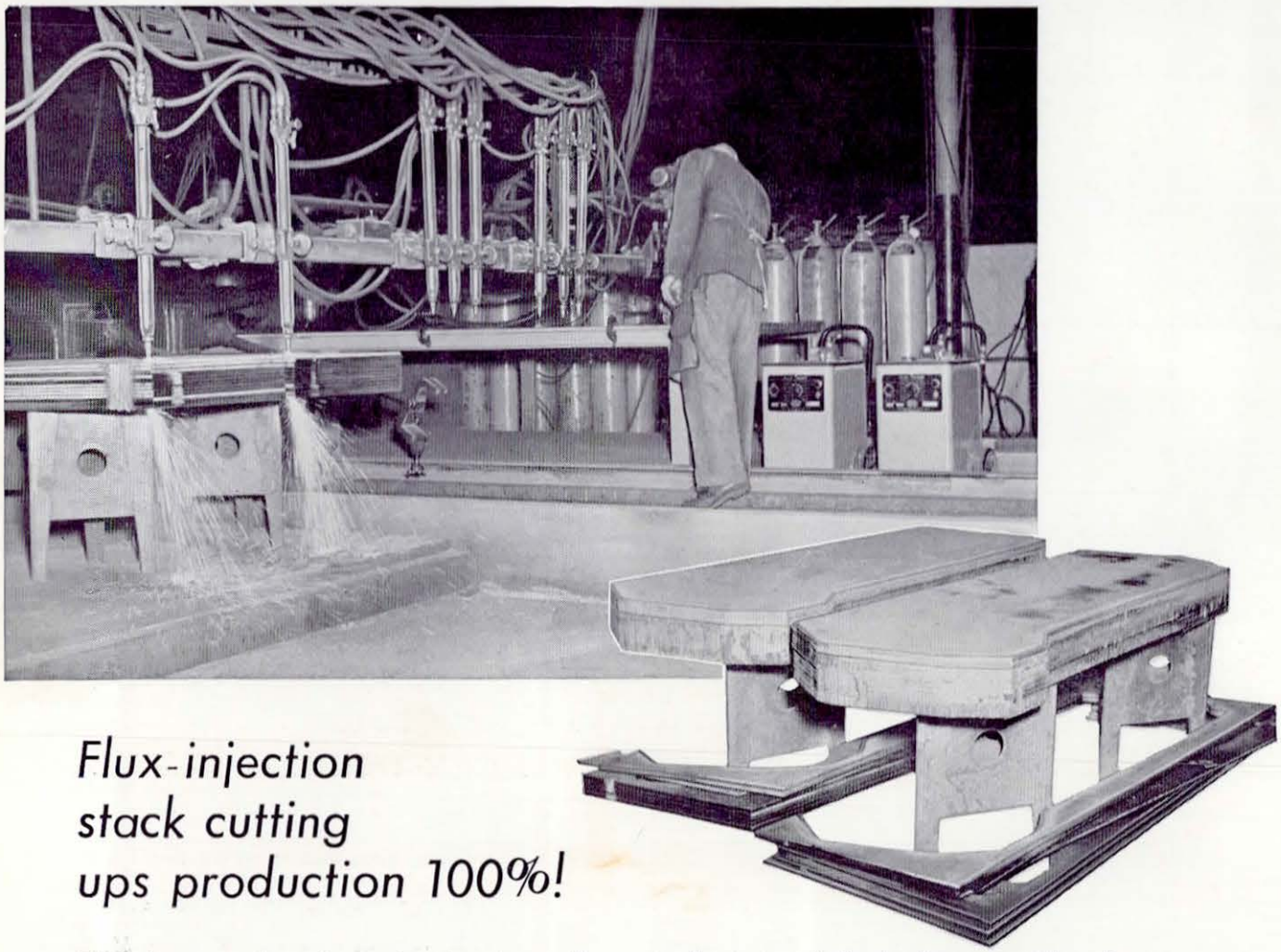
Of course, the big slice of this appetizing business finds its way into A.C.F.-built freight cars. Because A.C.F. *all-welded designs* perform better and roll further without service lay-ups. Because A.C.F. *assembly-line techniques* and *vast, modern facilities* are turning out finer freight cars that better serve the *Shipper*, the *Railroad*, and the *Nation*.

American Car and Foundry Company, New York, Chicago, St. Louis, Cleveland, Philadelphia, Washington, Pittsburgh, San Francisco.

a.C.f.

CAR BUILDERS TO AMERICA'S RAILROADS

What's the best way... **to shape-cut car sheets?**



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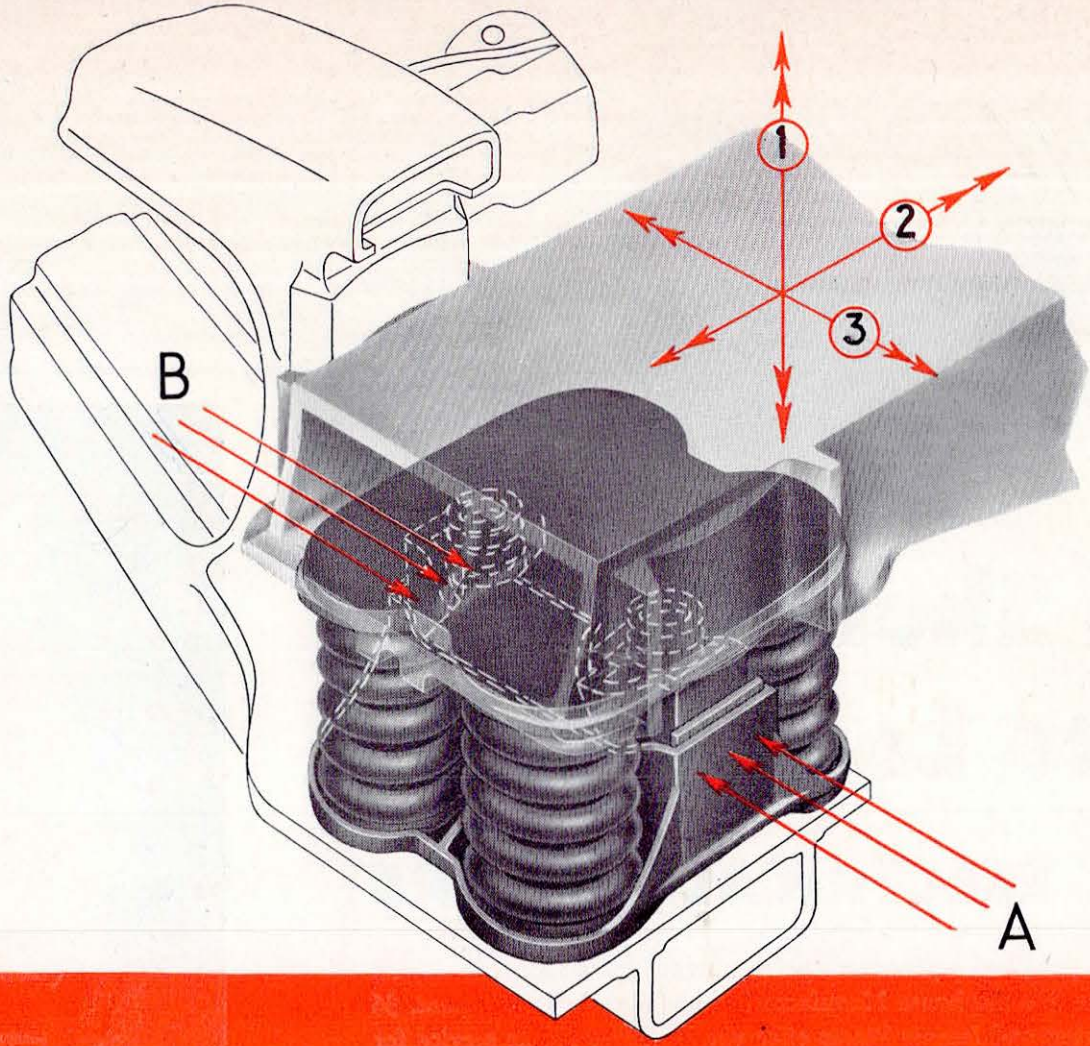
Costs Come Down Under The Airco Plan

AIRCO **AIR REDUCTION**

Offices in Principal Cities

Headquarters for Oxygen, Acetylene and Other Gases... Carbide... Gas Cutting Machines... Gas Welding Apparatus and Supplies... Arc Welders, Electrodes and Accessories



Transforms Ordinary Freight Car Trucks into SMOOTH-RIDING EQUIPMENT

● Rough-riding freight car trucks become smooth-rolling equipment when the AAR coil spring group is replaced by a Ride-Control Package. It's the self-contained, *self-controlled* unit, with long-travel springs, that smooths and cushions *all* bolster motion.

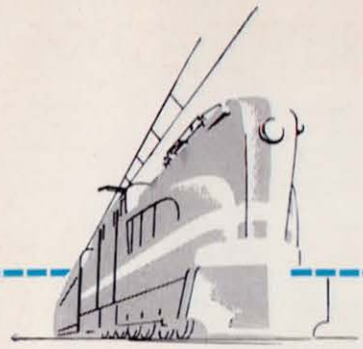
EASY ON LADING, ROLLING STOCK, AND ROADBED

Constant, *uniform* frictional resistance (the A.S.F. Ride-Control principle) acts (1) vertically; (2) laterally; (3) longitudinally—while balanced pressures "A" and "B" tend to keep truck square. The Ride-Control Package means performance economy; protects roadbed, car, and contents. It's the *low-cost* way to modernize.

A·S·F *Ride-Control* PACKAGE

AMERICAN STEEL FOUNDRIES

MINT MARK OF ⬡ FINE CAST STEEL



36 Short Cuts to Lower Costs

FOR ELECTRICAL REPAIRS

Get your repairs and replacement parts, plus complete service facilities, through the Westinghouse Manufacturing and Repair Department. 36 Manufacturing and Repair Plants offer you complete repair service for everything electrical. Conveniently-located warehouses have complete stocks of parts. Draw on any or all of these stocks for any part you need. This way you eliminate stocking costs for warehousing . . . limit personnel to servicemen for minor operations . . . save the costs of maintaining elaborate service shops.

What's more, at your command are skilled electricians for day or night emergency service . . . Westinghouse engineers to give you skilled supervision . . . up-to-the-minute repair machinery plus everything needed to effect repairs on all types of electric locomotives—diesel electric, steam turbine electric and conventional electric.

Take advantage of these 36 Westinghouse short cuts to lower costs. You'll find you get the best in service and products developed through 60 years of close association with American railroads. Contact your nearest Westinghouse Office for your requirements. J-95146

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

PARTNER IN RAILROAD PROGRESS

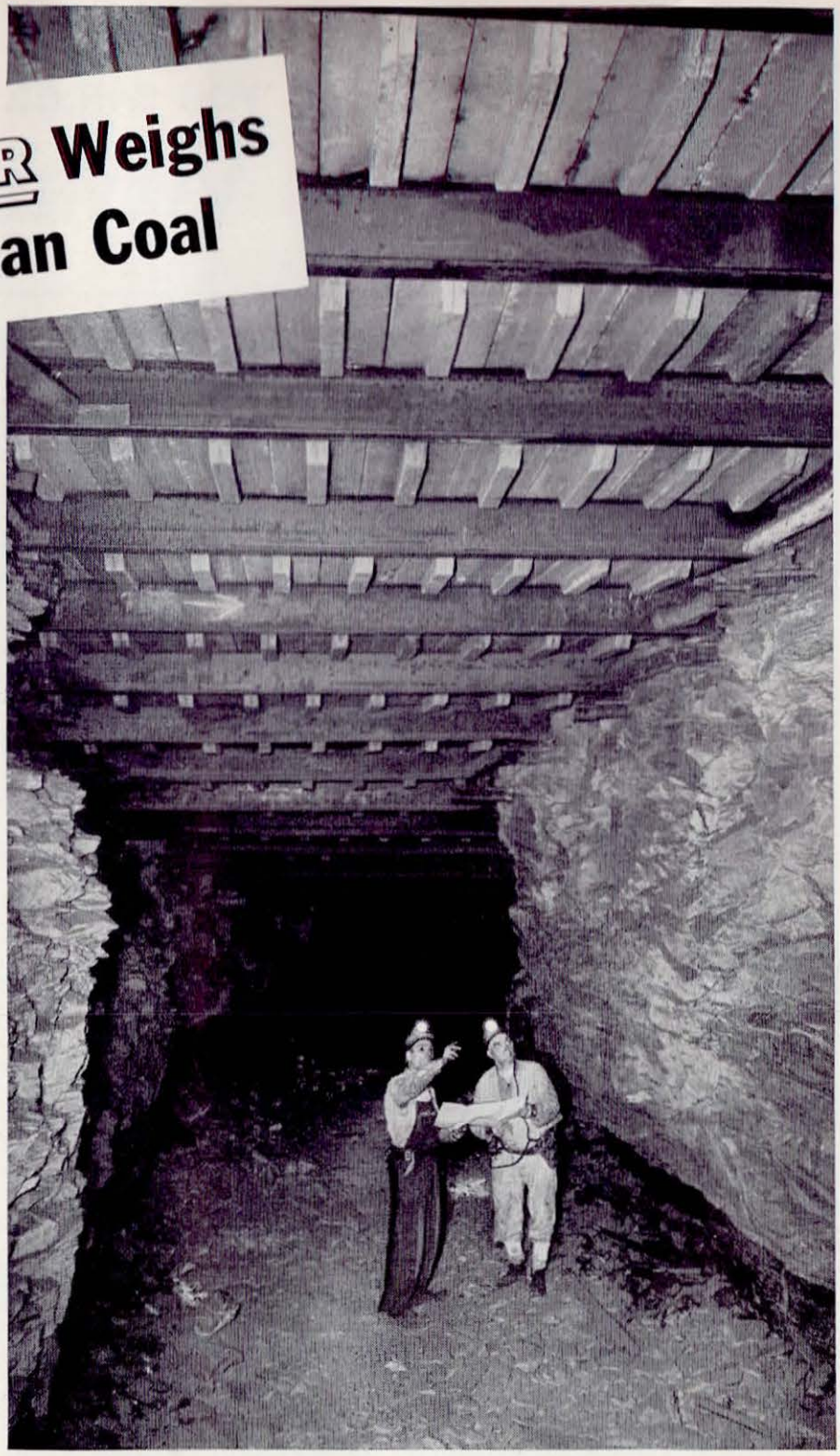
YOU CAN BE **SURE**.. IF IT'S

Westinghouse

The locations indicated on the above map are those of the 36 Manufacturing and Repair Plants which are always at your service.

- ● **Manufacturing and Repair Plants**
- ◉ **With Field Engineering Service**
- ◔ **With Warehouse with Items Now in Stock**

Where AIR Weighs More than Coal



In modern coal mines, for ventilating purposes alone, more tons of air are pumped in each day than tons of coal brought out!

To bring fresh air into mines and exhaust it again at the surface calls for a tremendous investment in construction and equipment—as the ventilating "overpass" shown here clearly indicates.

Blasted out of solid rock, roofed with steel beams and concrete slabs, it carries intake air over the mine haulage way which also serves as a giant exhaust duct.

Developments like this are typical of the improved conditions under which modern miners work . . . and indicate, too, the extent of the industry's billion-dollar, three-year mine modernization program.

Modern production facilities have come a long way—largely because of the mechanization program sponsored by progressive coal operators. Right now the industry is investing in new machines, new mines, and new preparation plants at a rate amounting to over a billion dollars in the next three years alone. Thanks to investments in new equipment and mining methods, today more than 91% of all bituminous coal mined underground is mechanically cut, and about 60% is mechanically loaded. Less than 3% is now mined by pick and shovel.

BITUMINOUS COAL

BITUMINOUS COAL INSTITUTE

A Department of National Coal Association

WASHINGTON, D. C.

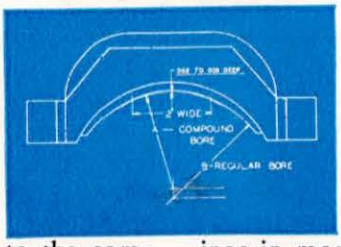
BITUMINOUS COAL . . . LIGHTS THE WAY . . . FUELS THE FIRES . . . POWERS THE PROGRESS OF AMERICA

New N-B-M COMPOUND BORE JOURNAL BEARING

Reduces Hot Boxes . . . Lowers Maintenance Costs

The N-B-M Compound Bore Journal Bearing gives you a precision-machined fit right from the start—and is furnished at no extra cost

New savings in maintenance costs, better journal bearing performance... both of these important advantages are now made possible by N-B-M Compound Bore Journal Bearings.



N-B-M Compound Bore Journal Bearings are precision-machined and assure a fit on either standard or undersized axles that is superior to hand scraping. This better fit is due to the compound bore—actually a bore within a bore as shown in the blueprint. The compound bore design permits a wider journal-contact area *right from the start*—insuring maximum fluid film pressures for better lubrication and a shorter, lower-temperature run-in. No hand scraping or fitting are necessary. N-B-M Compound Bore Journal Bearings are ready for service as shipped. In the case of undersized axles, necessary conformation of the bearing is minimized.

This new development in journal bearing design has been thoroughly service-tested and is now in use by several leading railroads in both freight and passenger service. Savings in money and time have been exceptional. *N-B-M Compound Bore Journal Bearings are available for immediate shipment—at no extra cost over standard journal bearings.*

Write for additional technical information on N-B-M Compound Bore Journal Bearings, or have the nearest N-B-M representative personally give you more details.

Plants in: St. Louis, Mo. • Meadville, Pa. • Niles, Ohio • Portsmouth, Va. • St. Paul, Minn. • Chicago, Ill.

AMERICAN Brake Shoe COMPANY

NATIONAL BEARING DIVISION

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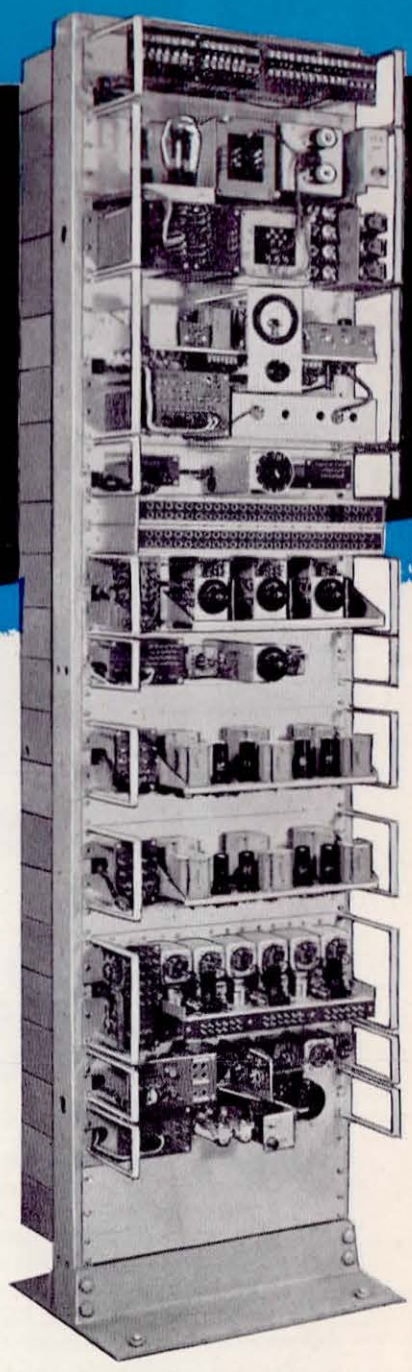
PLANTS IN: ST. LOUIS, MO. • MEADVILLE, PA. • NILES, OHIO • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

DON'T "SIDETRACK" V. F. TELEGRAPH BECAUSE OF HEAVY TELEPHONE TRAFFIC



Lenkurt Type 32D Carrier Terminal with protective dust covers removed. Compact front and back rack mounting insures ease of installation and inspection.

ONLY *Lenkurt* TYPE 32D CARRIER OFFERS *ALL these Advantages*

- The "NEW LOOK" in Carrier design
- Internationally proven field performance
- Highest quality components, including long-life tubes
- Electronic pilot-channel regulation incorporating "twist" regulation
- FM or AM V. F. telegraph which can be applied in many combinations
- Automatic synchronization of voice channels used for telegraph
- Choice of: (a) 20/1000 ringdown operation
  (b) H. F. Carrier pulsing for "Operator Toll Dialing"
  (c) H. F. Carrier signaling and supervision

...YOU CAN HAVE BOTH!

WITH Lenkurt TYPE 32D (3½ CHANNEL) CARRIER TELEPHONE SYSTEM

You're "on the right track" when you choose the flexible Lenkurt Type 32D Carrier Telephone System. In addition to three telephone channels, you can have up to NINE voice-frequency carrier telegraph sub-channels, without impairing any of the telephone channels or the physical circuit. HOW? A filter system with lower cut-off allows the Lenkurt Type 32D to use the otherwise wasted bands immediately above and below the voice channels for an additional "half-channel" on which the NINE telegraph sub-channels can be obtained.

Lenkurt Type 32D makes possible:

3 TELEPHONE and 9 TELEGRAPH CHANNELS
or
2 TELEPHONE and 27 TELEGRAPH CHANNELS
or
1 TELEPHONE and 45 TELEGRAPH CHANNELS
or
63 TELEGRAPH CHANNELS

Single-sideband suppressed carrier transmission is used for all channels, and is available in two frequency allocations which will minimize the inter-system crosstalk problem on paralleling carrier systems. On channels used for telegraph, the modulating carrier frequency is also transmitted at "subdued" level and after recovery and amplification, is used for demodulation—thus eliminating all synchronizing problems and precluding any "bias" or frequency drift on the superimposed telegraph channels.

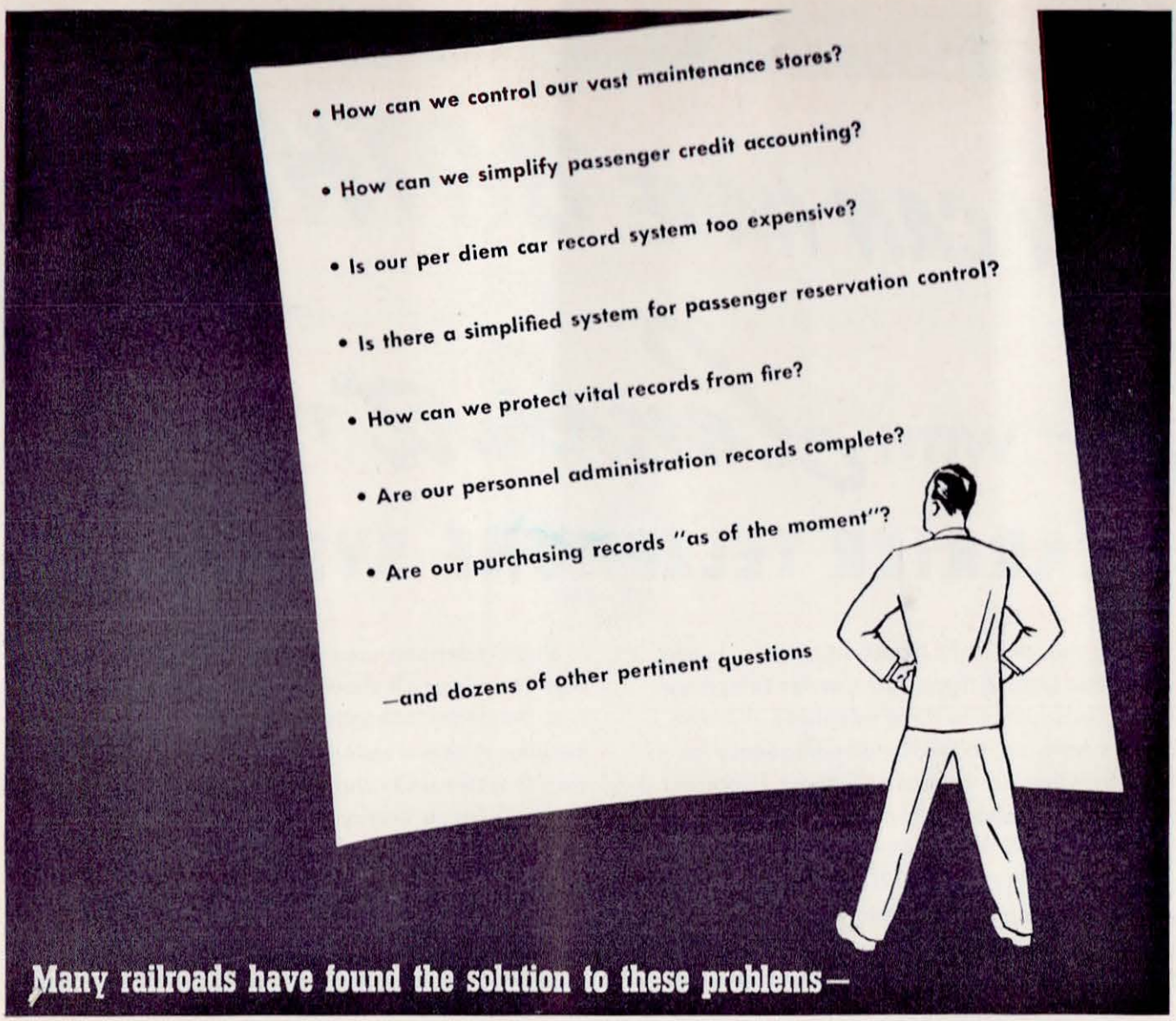
The Lenkurt Type 32D will work over any distance by installing Type 32R repeaters at suitable intervals. Rugged electronic pilot channel regulator equipment maintains the transmission level within plus or minus ½ db. over a broad 20 db. range of attenuation changes.

Write today for complete engineering analysis of your carrier problem, giving details of the lines over which you plan to operate the carrier system.

RECOMMENDED AND DISTRIBUTED BY

AUTOMATIC ELECTRIC
SALES CORPORATION

1033 W. VAN BUREN ST., CHICAGO 7, ILL.


• How can we control our vast maintenance stores?
• How can we simplify passenger credit accounting?
• Is our per diem car record system too expensive?
• Is there a simplified system for passenger reservation control?
• How can we protect vital records from fire?
• Are our personnel administration records complete?
• Are our purchasing records "as of the moment"?
—and dozens of other pertinent questions
Many railroads have found the solution to these problems—

with Remington Rand Simplified Systems and Equipment

Profitable and efficient operation of railroads demands *know how* and *highly specialized* record keeping systems.

That's why thousands of roads have turned to Remington Rand for help in simplifying operating procedures and eliminating cost-heavy systems. They realize that we don't employ guesswork. No trial and error. Our systems are based on years of experience in developing step-saving procedures for railroads, large and small.

Only Remington Rand can give you a *choice* of systems plus equipment you'll need for full efficiency: A visible record for quick reference and supplying facts at a glance, *so necessary for stores control, per diem car records costs, personnel information* and *purchasing data;* vertical record equipment with special space-saving features to cut overhead costs; high speed filing and sorting equipment so useful in *passenger credit accounting procedure;* insulated housing units to protect all vital records from fire at point of use.

These are just a few of the many ways Remington Rand systems and equipment are helping railroads increase operating efficiency. It will pay you to investigate how our systems and procedures *can simplify and save in your operations.* Each record is patterned to meet your specific requirements, and installation, supervised by Remington Rand specialists, can be accomplished without interrupting your office routine during the change-over period.

For details, phone the Remington Rand office near you, or write Transportation Systems Department, 315 Fourth Avenue, New York 10, N. Y.

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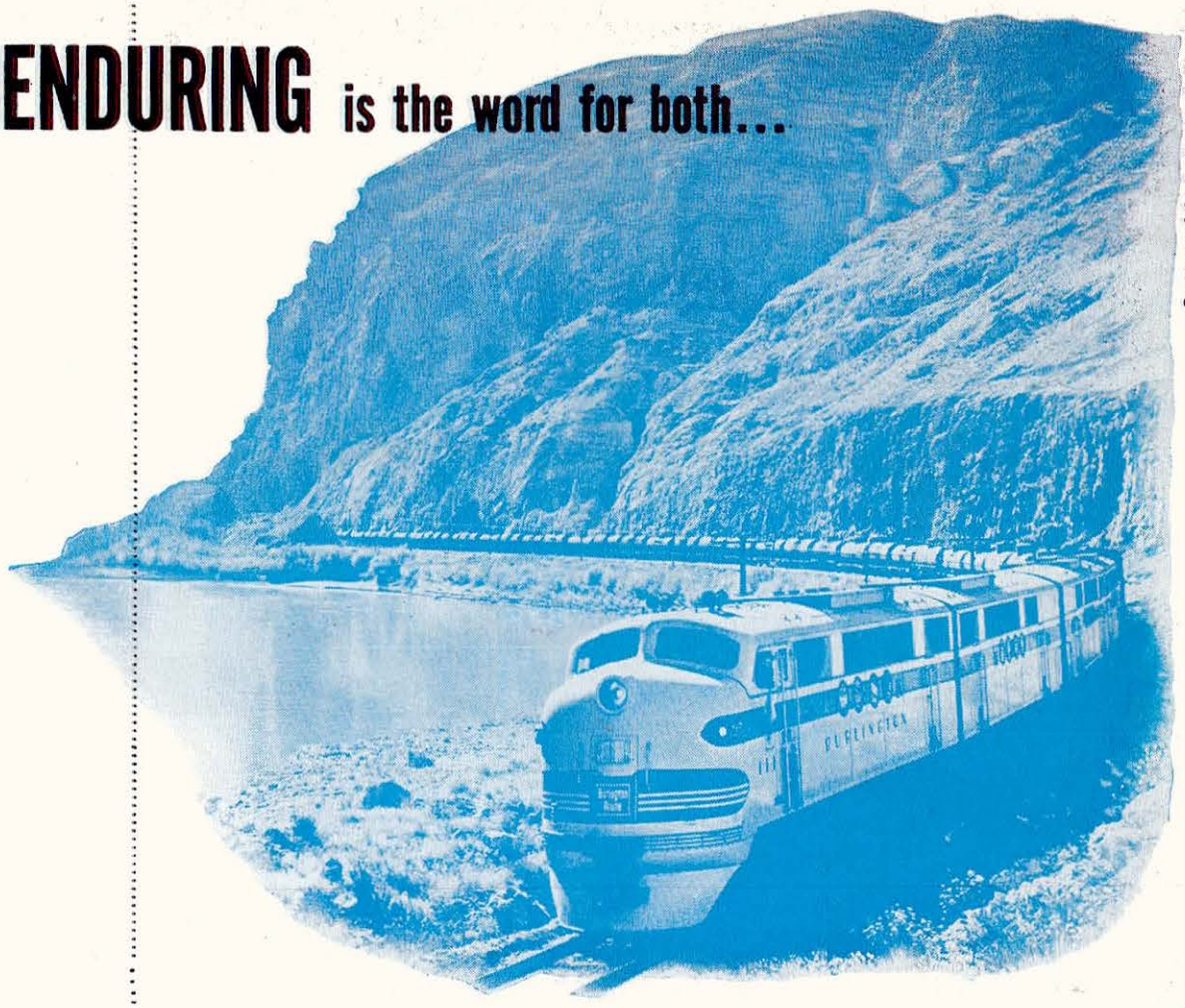
Keeping pace with railroad progress **Remington Rand** *the FIRST name in business systems*

ENDURING is the word for both...



Courtesy of the Burlington Railroad.

DEPENDABLE SCULLIN STEEL CASTINGS SALUTE THE DEPENDABLE BURLINGTON THEY'VE SERVED SO LONG

50 YEARS' PROGRESS

For 45 of the Burlington's 100 years, Scullin has supplied this great railroad with constantly-improving locomotive and freight car castings.

As we mark our own half-century of progress, we're particularly proud that the *unfailing dependability* of Scullin Steel Castings has contributed to the Burlington's reputation for reliable service—as it has to so many other leading lines.

When you specify Scullin—you're *sure!*

SCULLIN STEEL CO.

SAINT LOUIS 10, MISSOURI

NEW YORK • CHICAGO • CLEVELAND • BALTIMORE • RICHMOND, VA. • MEXICO CITY, D. F.

THE TELETYPE - -

and how it Speeds Freight Service on the M. & St. L.

Teletypewriter Service, modern method of rapid two-way communication, links the many traffic offices of the Minneapolis & St. Louis Railway, located both on its own lines and throughout the country. Only a few railroads have it.

Teletype, as one of its big jobs, provides the fast interchange of information between M.& St. L. offices that is so important in "tracing" consignments of freight for Shippers and Receivers, on the M. & St. L. and on connecting railways, North, South, East, West.

"Tracer Service" is a big factor in the "follow-up" which is a specialty of M. & St. L. traffic men in their endeavor to provide efficient transportation, complete in detail and constantly improved.

It insures that any Shipper or Receiver can learn quickly, just by asking an M. & St. L. traffic representative, the whereabouts of the freight car that contains

his shipment, whether routed all or only part way via the M. & St. L.; and, most important, when the shipment is going to be delivered.

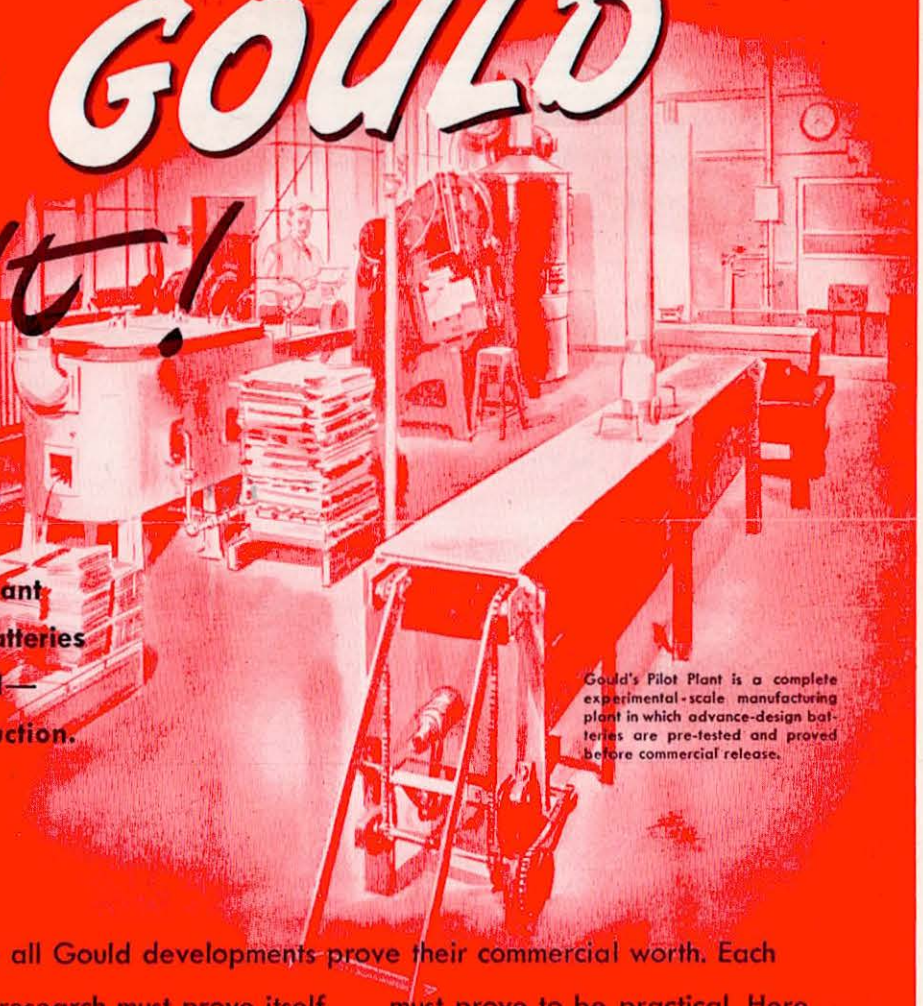
Modern & Stream-Lined Freight Service—Speeded by Teletype

The MINNEAPOLIS & ST. LOUIS Railway

TRAFFIC OFFICES IN 36 KEY CITIES

Only GOULD Has It!

A modern research laboratory with pilot manufacturing plant where advance-design batteries are constantly created—and proved before production.



Gould's Pilot Plant is a complete experimental-scale manufacturing plant in which advance-design batteries are pre-tested and proved before commercial release.

The Pilot Plant is where all Gould developments prove their commercial worth. Each advance of research must prove itself . . . must prove to be practical. Here, Gould has already made advances in methods of die-casting and in the use of powdered metals, and has done revolutionary work in the improvement of gravity casting. Here, present batteries are being perfected and tomorrow's advance-designs are being created. Another reason why the better batteries come from GOULD—FOR FIFTY YEARS THE CHOICE OF ENGINEERS.

The Gould Kathanode for Diesel Starting—America's First Triple Insulation Battery!

GOULD

STORAGE BATTERY CORPORATION

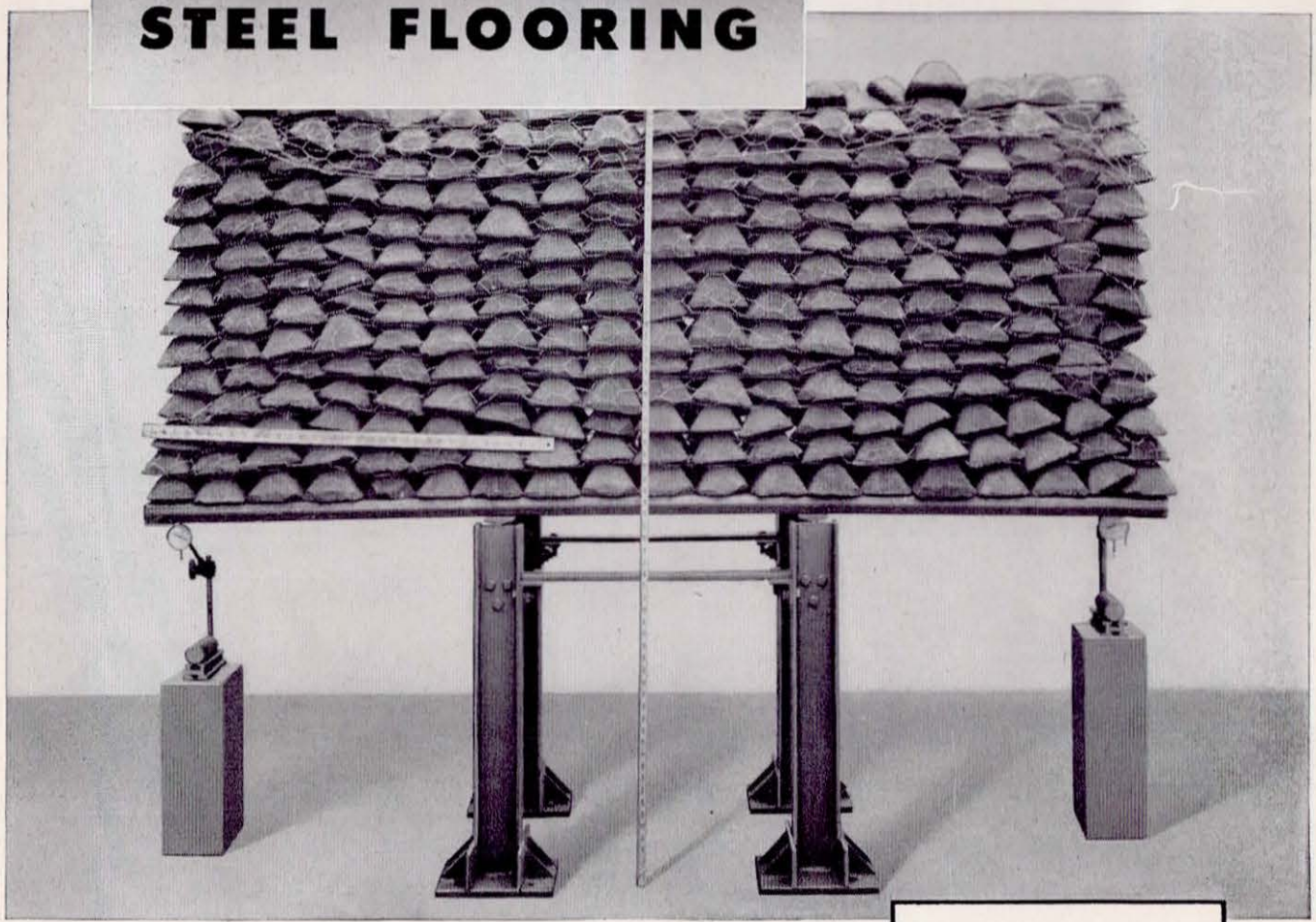
Including the Storage Battery Division of Philco Corporation

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

STOP DANGEROUS AND COSTLY BOXCAR FLOOR BREAK-THROUGH WITH NAILABLE STEEL FLOORING

In Detroit Testing Laboratory test to determine cantilever strength, 11,000 lbs. of pig iron were loaded on a panel consisting of three NAILABLE STEEL FLOORING boxcar channels welded side by side. The cantilever span was 30". Under this floor load of 733 pounds per square foot—far in excess of heaviest freight loading—the NAILABLE STEEL FLOORING section *hadn't even reached the yield point.*



In actual use as well as in laboratory tests it has been proved that NAILABLE STEEL FLOORING can't break through under *any* kind of heavy freight. Boxcars with NAILABLE STEEL FLOORING have safely hauled heavy copper cakes, automobile engines, highly concentrated loads of sheet steel and tinplate as well as hundreds of other commodities.

No Fork Truck Break-Throughs Either

NAILABLE STEEL FLOORING supports the biggest fork trucks, too, which so often break through conventional floors. For example, 23 cars are spotted each day at the Wabash Railroad's Ford Loading Dock in Detroit. Although they're all new or recently rebuilt, an average of *five* or *six* cars per day come in with large holes somewhere throughout the length of the floor where fork trucks have broken through.

Durability Means Low Maintenance . . . Low Operating Costs

NAILABLE STEEL FLOORING stops the break-throughs—and a good many other common floor troubles. It isn't chewed up by pinch bars or rough freight. Although nails are tightly clinched, they don't tear, splinter or deform the floor. All this adds up to lower maintenance costs—and lower operating costs as well. When floors stay in good condition for all types of freight, cars require less switching and empty movement.

To eliminate dangerous break-throughs and reduce maintenance costs, specify NAILABLE STEEL FLOORING for the next boxcars you build or rebuild.

"Many delays and potential accidents have occurred and are continuing to occur, due to pig iron, lead, copper bars and similar commodities breaking through boxcar floors . . . this condition . . . is due to the type of equipment selected for this type of loading." (Car Department Officers Association Report by Committee on Preparation of Freight Cars, September 20, 1948)

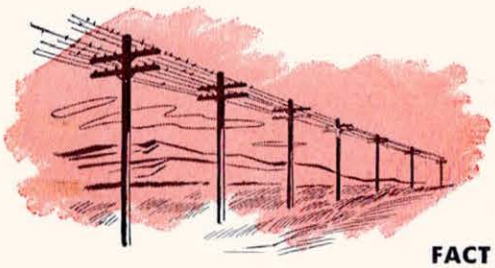
NAILABLE STEEL FLOORING
A GREAT LAKES STEEL PRODUCT

GREAT LAKES STEEL CORPORATION

Steel Floor Division • 3576 Penobscot Building • Detroit 26, Michigan

UNIT OF NATIONAL STEEL CORPORATION

A Few Plain Facts about Preserving Wood

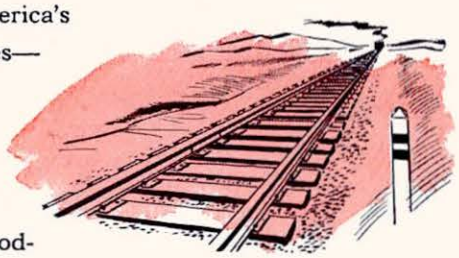


FACT 1: Creosote Oil, properly applied, protects wood against dry-rot, termites, fungi, and other wood destroying organisms—extends the life of wood three to five times, or longer.

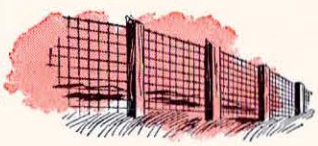
FACT 2: Creosote Oil is the most widely used, the most universally preferred, wood preservative in the world.

FACT 3: Creosote Oil for the pressure treatment of wood has been in use long enough to *prove* its effectiveness. It has been successfully used under practically all conditions for more than 100 years.

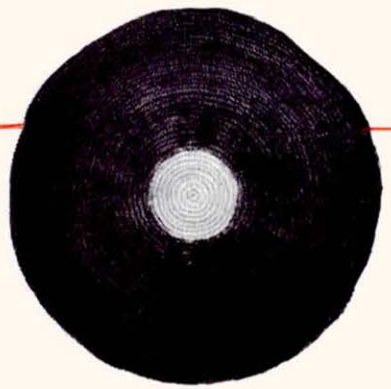
These are the reasons why Barrett—one of America's oldest and largest producers of wood preservatives—stands squarely behind Creosote Oil. When a truly better, more dependable method of preserving wood is found, you may be sure that Barrett, with more than a half-century of wood-preserving experience, will sponsor it.



These are the reasons, too, why so many of America's leading railroads and utilities continue year after year to use Creosote Oil to protect their huge investments in ties, poles and structural timbers. At today's exceedingly high prices for lumber and labor, they recognize that it's more than ever important to use a wood preservative that has demonstrated its effectiveness beyond all shadow of doubt.



PENETRATES...PRESERVES...PROTECTS



THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

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How to get more without using

HERE'S HOW THE "PENNSY" USES STEEL THAT DOES MORE TO BEAT THE STEEL SHORTAGE . . . TO BEAT THE CAR SHORTAGE

In 2,490 modern, lightweight box cars like this the Pennsylvania Railroad used welded construction and high strength steel—a large part of which was U·S·S Cor-Ten—to reduce body weight 6,730 lb. per car. This reduction of dead weight of rolled steel saved almost 3½ tons of steel per car, represents a saving of more than 8,300 tons of steel—enough tonnage to build 772 more car bodies of the same type and size.

new cars
more steel tonnage!

Use steel that does more . . .
Build light with U·S·S Cor-Ten

You can beat the steel shortage—make your steel supply go farther—simply by taking advantage of U·S·S Cor-Ten's greater strength and greater resistance to atmospheric corrosion.

By using U·S·S Cor-Ten in thinner, lighter sections in place of heavy carbon steel construction, the weight of rolled steel in your freight equipment can easily be reduced 22%.

This 22% *average* saving in steel makes it possible for you to get more cars from the same number of tons of steel . . . and not 22% more cars but 28% more.

In some specific designs, Cor-Ten construction does even better, will save enough steel on a 1000 car order to build 300 *additional* 50-ton box cars, or 325 *more* hoppers. In other words, by using steel that does more, you get *bonus* production from your steel supply—you can put many more new cars in operation to serve your customers *without* using more steel.

"Steel-saving" Cor-Ten cars save in other ways, too

Because they weigh less, Cor-Ten cars save in the fuel and motive power required to move them. Because they haul additional payload in place of useless deadweight they increase revenue, save in the number of cars required to haul a given amount of freight. Because U·S·S Cor-Ten has 4 to 6 times greater resistance to atmospheric corrosion than plain steel, and is stronger, tougher, and more resistant to impact, these Cor-Ten cars stand up better and you save on maintenance and repairs as well.

It costs little or nothing more to use steel that does more

Based on cost per ton of capacity, Cor-Ten equipment may actually cost less than heavy, steel-wasting construction. Based on the cost per car, Cor-Ten equipment can be built at little or no increase in cost. Why? Because U·S·S Cor-Ten, like plain steel can be readily fabricated—because an average of 22% less steel is required per car, which reduces both steel costs and shipping costs — and finally because your fixed charges can be spread over 28% more units per ton.

Today, more than 120,000 freight cars built lighter with U·S·S Cor-Ten are in service or on order.

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UNITED STATES STEEL

Good News for Travelers

that Good Brakes help to write

The RAILROAD HOUR

ABC NETWORK · Monday Nights

Brakes are Basic to Railroad Progress

Next to a top safety record, railroad men are generally proudest of a blue-ribbon record for maintaining schedules. The "On Time" chalked on the announcement board is a big factor in winning passenger patronage and building good will.

Westinghouse HSC electro-pneumatic air brake equipment helps many famous trains to build reputations for dependability. In application and release, the impulse travels the length of the train in the wink of an eye. Braking pressures are equalized automatically on all cars in the train.

The engineman can make a later application in approaching restricted speed zones, and a quicker release in leaving. Running time can be substantially reduced without increasing top speed.

For your modern passenger trains, use this modern combination: HSC AIR BRAKES . . . for braking flexibility to match modern train speeds, and unequalled smooth action. SPEED GOVERNOR CONTROL . . . for regulating brake forces to wheel speeds. AP DECELOSTAT . . . for wheel slip detection to keep the wheels rolling.

Westinghouse Air Brake Co.

WILMERDING, PA.

Vol. 126, No. 9 February 26, 1949

RAILWAY AGE

With which are incorporated the Railway Review, the Railway Gazette, and the Railway-Age Gazette. Name Registered in U. S. Patent Office.

IN THIS ISSUE

EDITORIALS:

Why Freight Rates Are So High 27
Keeping a Good Man on the Job 28
A Neglected Agency of Progress 29

COMMUNICATION 38
NEW BOOK 38
GENERAL NEWS 47
OPERATING REVENUES AND EXPENSES .. 66
PUBLICATIONS 68

GENERAL ARTICLES:

Ironing Out A Railroad, by Roy P. Hart 30
How A Small Railroad Schedules Diesel Locomotive Maintenance, by E. H. Holloway 35
S. P. Improves Freight Claim Handling 37
Drop-Bottom Gondolas Equipped with Nailable Steel Flooring 39
Paper Retaining Doors Cut Bulk-Commodity Shipping Costs 40
Western Roads Wage Prolonged Battle With Record Snows 42
Deaths in Railroad Accidents at 61-Year Low in '48 44
New and Improved Products of the Manufacturers 46

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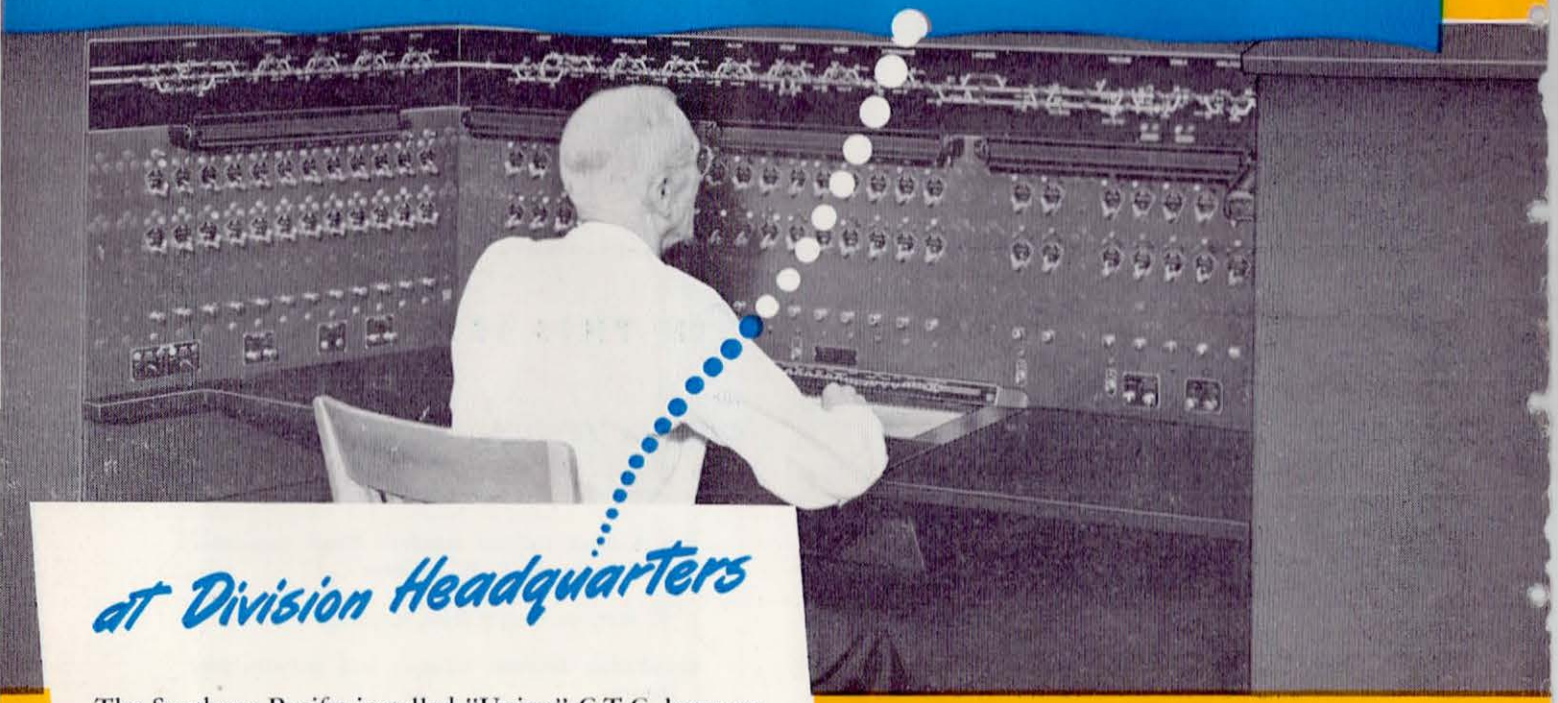
"UNION" C.T.C. on the Southern Pacific *concentrates control*

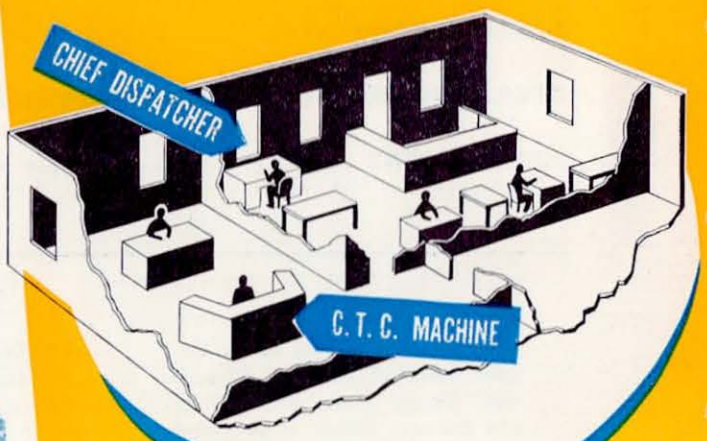


at Division Headquarters

The Southern Pacific installed "Union" C.T.C. between Lucin, Utah and Bridge, 74.3 miles, and quickly smashed a bottleneck caused by heavy traffic fed into a single-track territory from the adjacent double track territories . . . and complicated by slow orders of 30 m.p.h. for streamliners and 20 m.p.h. for all other trains on the 11.9 miles single-track trestle over Great Salt Lake.

Modern "Union" engineered controls made it possible to install the C.T.C. machine in the dispatchers' office at Ogden division headquarters, even though the nearer end of the controlled territory was 28.7 miles away.

As a result, *maximum* operating advantages are obtained through efficient *concentration of control at division headquarters.* Siding delays are reduced to a minimum, congestion is eliminated, and freights in the Ogden yard can be released as soon as they are ready to go.



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WEEK AT A GLANCE

THE FICTION OF MONOPOLY: Maintenance by shippers of the out-dated fiction that railroads have a monopoly of transportation, and the politically-decreed poor utilization of the railroad plant which results therefrom, is cited in our leading editorial as the underlying cause of increased railroad rates. The answer, which our editorial also supplies, lies in finding the courage and integrity to take two simple, logical steps.

EQUIPMENT TRUSTS IN DANGER: The high credit standing of railway equipment trust obligations is seriously threatened, and may soon be gravely endangered, Patrick B. McGinnis, chairman of the board of the Norfolk Southern, told the New York Railroad Club in a fighting talk last week. A change in depreciation rates and depreciation accounting practises, adoption of quantity rates to meet private and contract carrier competition, and some new means of financing fixed property improvements are some of the measures Mr. McGinniss suggested to meet the threat. His address is fully reported in this week's News.

NAILABLE STEEL FLOORING: A short illustrated article on page 39 describes the application of Great Lakes nailable steel flooring in 25 drop-bottom gondola cars recently built by the Chicago, Milwaukee, St. Paul & Pacific. It is believed to be the first installation of this type of flooring in a drop-bottom car.

FEDERAL TRAFFIC BUREAU: A centralized federal traffic bureau is recommended in one of the Hoover Commission reports. The commission also proposes an end of "hidden" transport subsidies—but not necessarily an end of the subsidies themselves. Both recommendations are reported in our News columns.

PAPER RETAINING DOORS: An illustrated article on page 40 tells how the Illinois Central has successfully used heavy-duty kraft paper retaining doors, reinforced with steel strapping, in long-distance bulk shipments of alumina powder. Experience to date on the I.C. and other railroads indicates that such doors, low in cost and easy to apply and to remove, may be advantageously used in handling many other bulk commodities.

MAKING THE BEST OF IT: Like death and taxes, freight claims—a certain number of them, anyway—are probably inevitable. That being the case, it's good common sense to handle them as economically and expeditiously as possible, and to do it in such a way as to obtain maximum customer satisfaction. A code-numbering and visible-indexing system has contributed to all those results on the Southern Pacific; it is described, and some of its salient features illustrated, on page 37.

FIFTEEN TO ONE: The Monthly Comment of the Interstate Commerce Commission's Bureau of Transport Economics and Statistics, summarized at page 44, covers, as usual, a variety of subjects. First place, appropriately enough, goes to the splendid safety record achieved by the railroads in 1948, when fatalities from rail accidents of all kinds were at the lowest annual level since the I.C.C. began to keep score back in 1888. The passenger fatality rate of regularly-scheduled domestic air lines in last year's first nine months, incidentally, was approximately 15 times that of the railroads in the same period. Other articles in the Comment analyze railway financial results for 1948, equipment obligations due in 1949, and postwar traffic of transcontinental railroads.

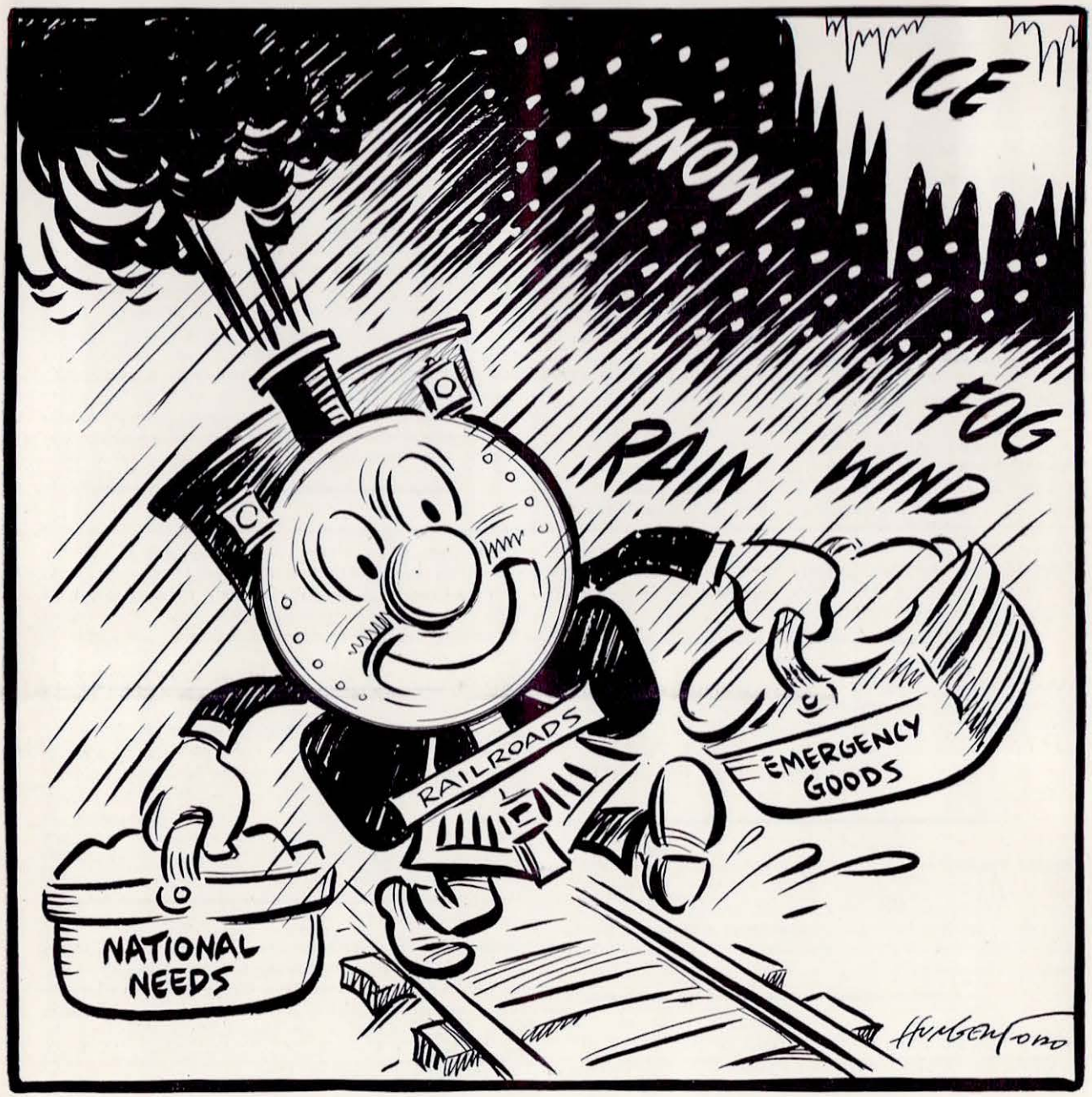
RESTORING RAILROAD CREDIT: Fairman R. Dick, railroad financial authority, writing in the March issue of Fortune, proposes an inescapable mandate from Congress to the Interstate Commerce Commission for a railroad rate level sufficient to produce a cumulative fair return, as a means of restoring railroad credit. His article is abstracted in the News section.

DIESEL MAINTENANCE ON A SMALL RAILROAD: E. H. Holloway, superintendent of Diesel maintenance for the Central of Georgia, recently described to the Southern & Southwestern Railway Club at Atlanta, Ga., how his company schedules its Diesel-maintenance work. As a matter of general interest, particularly to other roads in the same general size group, part of Mr. Holloway's address is abstracted on page 35.

IRONING OUT A RAILROAD: For 60 years, the Missouri Pacific has given constant attention to improving its operation and reducing its costs by a steady program of main-line and grade revision. Some of its more recent major efforts in this direction are described in this issue by Roy P. Hart, the company's chief engineer; his well-illustrated article starts at page 30.

SNOWBOUND: Snow may be a thing of beauty to poets, artists, photographers and children. But to railroad officers and employees, charged with keeping tracks open and trains moving, it's an entirely different story. Eastern railroads, after their troubles of last winter, experienced little difficulty this year, but the Western lines have had their hands full with one of the worst winters—quite possibly the very worst—ever recorded in their area. A series of pictures on pages 42 and 43 shows what some of the western lines had to contend with, while the eventual triumph of a third is recorded in our News pages. Unlike their truck competitors, of course, the railroads had to fight the snow with their own money, men and resources; they couldn't wait for tax-financed state highway crews to open *their* lines.

He's No Fair Weather Friend! —By Hungerford



Watch for other railroad cartoons by Mr. Hungerford

A cut of suitable size may be obtained at cost by anyone wishing to reproduce the above cartoon.

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WHY FREIGHT RATES ARE SO HIGH

Although the increase in railroad freight rates—52 per cent over the pre-war level—is relatively modest when compared to the rise in prices of most goods and services, nobody would contend that there is anything intrinsically good in such a substantial increase in the price of so essential a service as transportation. The increase—and, indeed, a much larger one than has yet been authorized—is justifiable, but only as a "lesser evil," a price which it is much better to pay than to accept the inevitable alternative—deterioration in transportation service, which would follow if the railroads were denied rations adequate to their healthy survival. Increases in prices of food and steel and automobiles and houses—all of them much greater than the rise in railroad rates—are also "lesser evils" in the same way; that is, there is no inherent merit in any of them—except that it is better to pay higher prices than to go without the goods which could not otherwise be supplied.

Politics Decrees Poor Plant Utilization

The primary cause of the present increased level of freight rates, and of the forces now operating which threaten to push these rates still higher, is the *poor utilization of railroad plant* which has been decreed by politics. If shippers and the consuming public would induce the legislative and regulatory authorities to remove the political handicaps which prevent efficient utilization of railroad plant, the railroads could thrive on rates appreciably lower than those now required; and, if the railroads were thus permitted to prosper, they would attract the investment capital needed to finance additional improvements which would reduce their costs still further and, hence, make possible still lower rates.

Because of the wartime increase in traffic and because private and contract transportation by trucks and barges did not, during hostilities, divert as much traffic away from the railroads as it does in peacetime, the average mile of railroad line in 1944 was made to yield an increase of 97 per cent in ton-miles of freight service, compared to the per-mile output in 1940. The average freight train in 1944 carried a net load 33 per cent greater than that of 1940. The increased intensity in use of their plant, for both passenger and freight traffic, enabled the railroads in 1944 to earn $423,000,000 more net operating income than in 1940, with no increase at all in their average freight rates and of only 5 per cent in passenger fares—in spite of the fact that the average hourly wage of labor rose 25 per cent and the average price paid for materials went up 28 per cent.

Since the war ended the intensity of utilization of railroad plant has declined—largely because of the renewed and increased diversion of traffic to private and contract carriers by barge and truck.

Meanwhile, costs of labor and materials have continued to rise—hence the unavoidable necessity for substantial increases in freight rates and passenger fares.

If the railroads suffer further diversions of traffic to private and contract carriers, which is certainly what is happening now, then fixed costs will bear more and more heavily on the traffic which remains. The prospect, unless corrected, cannot be a pleasant one for railroad owners or employees, or for farmers and business men who must depend upon the *common carriers* for low-cost transportation service, since they are not wealthy enough to provide their own trucks and barges, and are not big enough to exact favorable bargains from contract carriers. The present unfavorable situation of the common-carrier railroads is, or should be, even more distressing to the authorities charged with the nation's defense; and to the statesmen who are striving to keep our system of political freedom economically superior to competing authoritarian systems.

The Fiction of Monopoly

The problem is one of enormous importance—in all likelihood the preservation of economic and political freedom in the Western hemisphere, and the gradual restoration of such freedom elsewhere in the world, depends upon preventing the transportation industry in this country from succumbing to socialization. The way to remove this danger is obvious and not at all complex. What is required is that the shippers who virtually dictate the nation's legislative and regulatory policy toward the railroads *cease supporting the fiction that these carriers have a monopoly in transportation*, and unite to demand the removal of all the fetters which prevent the railroads from competing on equal terms with private-carrier and contract-carrier rivals. Two steps are necessary to establish conditions under which common-carrier transportation by railroad can thrive to the limit of its economic and technological merit, hence removing the cause of high transportation costs and the threat of socialization, viz.—

1. Either establish compensatory tolls for long-haul commercial use of highways and improved waterways, making these facilities self-sustaining, or expend public funds for the extension and improvement of railroad facilities just as public funds are spent on highways and waterways—the benefits of such improvements to be passed along to users of the common-carrier railroads in reduced rates. In this way, equitable treatment of the "big fellows" and the "little fellows" among buyers of transportation would be restored, either by eliminating the subsidies which the "big fellows" —able to provide private or contract transportation —now enjoy, or by putting an equivalent subsidy to the credit of the "little fellows" who must use the common-carrier railroads.

2. Permit common carriers, where faced by the competition of contract or private carriers, to meet or cut under the rates of these carriers—wherever they can do so and recover more than out-of-pocket costs. No additional discrimination, but less, against the "little fellow" is involved in this proposal, because, as matters now stand, the "big fellow" gets the discriminatory rate anyhow and his traffic contributes nothing to defray the common carrier's "overhead costs," which are thus left as an added load on the "little fellow" who still must use the railroad.

Solution Requires Courage, Integrity

These steps would provide the railroads with all the traffic to which they are economically entitled, and no more, and would give them the volume necessary to keep transportation costs—and rates—at a minimum. All people reasonably well informed about the transportation business know that these simple steps would provide the lowest possible overall transportation costs to the American people and, in the absence of repressive measures, would establish the transportation industry on a sound financial basis. If this problem is not solved, and chaos continues, it will not be because the task of finding a solution overtaxes the capacity of the human intellect, but because of a shortage of courage and integrity on the part of those who know the answer, or how to find it.

KEEPING A GOOD MAN ON THE JOB

The Transportation Association of America is to be commended for its enterprise in securing the services of Clarence F. Lea as its director of governmental relations—an appointment which, as previously noted in these pages, becomes effective March 1.

Mr. Lea's 32 years as a leading member of Congress have given him a practical insight into the operations of the legislative branch of the national government which few other men possess. His 28 years as a member, and 10 years as chairman, of the House Committee on Interstate and Foreign Commerce have brought him an intimate knowledge, possessed by still fewer men, of national transportation problems—knowledge which goes back to the very beginning of the conditions which are primarily responsible for the existence of a major transport crisis today, knowledge which is uncolored by association with any particular agency

of transportation or with any special interest except a sincere and unselfish desire to solve that crisis for the benefit of the *public*.

Perhaps most important of all, Mr. Lea's unquestioned integrity, and his demonstrated ability to rise above petty partisan politics, have enabled him to win and to retain in unusual measure the confidence and esteem of those who have worked or been associated with him.

The Transportation Association has increased its own stature by providing a means whereby Mr. Lea's knowledge of government and of transportation will continue to function in the public interest in seeking an acceptable solution to the unsatisfactory conditions in the transportation industry.

A NEGLECTED AGENCY OF PROGRESS

American progress in science and the practical arts has proceeded at a tremendous pace during the last quarter of the Nineteenth Century and so far during the Twentieth Century. Many factors have contributed to this, but there is one without which the rate would have been slow; that is, the various means of expediting dissemination of the knowledge of ideas from their origin in the brain of a scientist or inventor to the developer and investor, to the ultimate user, and to the public which, in the end, reaps the benefit of their application. One of these agencies for expediting practical application of ideas which is typically American is the association. This takes many forms and is employed widely throughout all branches of science and industry.

Railway mechanical officers are by no means unaware of the place occupied by associations in their field. From the Mechanical Division, which is largely preoccupied with the establishment and control of equipment standards in the interest of safety of operation and facility of rolling-stock interchange, they range through the study of technique in a number of specialized subdivisions of departmental activity. The value of all of these organizations as expediters of improvement is well established. But the contribution made by engineering societies, such as the American Society of Mechanical Engineers, is by no means so well recognized.

Those railway mechanical officers who are not fully informed about these activities and who do not, themselves, or through qualified members of their staffs, participate regularly in them would do well to find out more about what the Railroad Division of that society is already doing for the advancement of the railroad industry, and to support it by adequate representation in its membership.

The A.S.M.E., as its name indicates, is interested primarily in engineering and design—not primarily in maintenance or day-to-day operating problems. This does not mean that the society belittles these practical daily tasks, but only that it concedes that the organizations with memberships restricted to railroad officers and supervisors in charge of mechanical operations are better fitted to deal with such problems than the society is. But the organizations which function so effectively with the problems of operation and maintenance do not and cannot provide the ideal forum for discussion and deliberation on strictly engineering subjects, if for no other reason than the fact that organizations with members solely from the railroads, perforce, exclude able engineers from the manufacturing industry whose professional contributions to the railroads are on a par with those afforded by engineers in active railroad service.

The organizations with memberships limited to active railroaders are indispensable, just as they are.

But, so organized, there is inevitably something of the "official" about them, with a protocol which makes it inappropriate for them to provide a forum where those with an interest in proprietary devices may be invited to participate freely. A rostrum which any man may be invited to ascend, provided he seems likely to say something of value, quite regardless of his "official" status, is certainly an instrument which technological advancement on the railroads cannot afford to dispense with, and which they can afford to support with a considerably nearer approach to unanimity than now obtains.

The Big Adventure: Remember our story about "the gigantic adventure" as they called it in England? Mines and railroads—even doctors working for the government? Here are some other angles to the story:

Truckers: Now the government has acquired 171 "road goods transport enterprises"—truckers, we'd call them—with their 10,000 vehicles. And they are going after 3,000 more trucking firms.

Jobs: When the 1,500,000 workers on railroads, trucks, buses, canals, streetcars, docks, warehouses—even the employees of 70 hotels—all are working for the government—wonder if they'll have to take an oath not to strike against the government?

Rules: One board tells you what to eat, another decides your clothing allowance, a third decides if you can drive a car and where, still another rules on who can kill a pig—samples of 25,000 rules harnessing English life.

Could Happen: An English friend writes us from London, "Maybe it could also happen in the United States, but it may not happen if all those concerned with transportation policies pull together and give up fratricidal strife."

—*Transportation Association of America*

Looking north over a segment of the Missouri Pacific's 9.5-mi. grade and curve reduction project at Tip Top, Mo., now practically complete, on the main line from St. Louis, Mo., to Texas and the Southwest

By ROY P. HART
Chief Engineer,
Missouri Pacific,
St. Louis, Mo.

IRONING OUT

For nearly the last 60 years, the Missouri Pacific Lines—the result of effort begun more than a century ago to provide better and more dependable transportation for St. Louis and the West and Southwest—have given their attention to improving operation and reducing operating costs through line and grade revision projects on primary main lines. One by one, large or controlling segments of important passenger and freight routes have been cut down and straightened to reduce grades and curvature, or raised to preclude flood damage and traffic interruption—and the work continues unabated. Often, at the same time, mileage has been shortened.

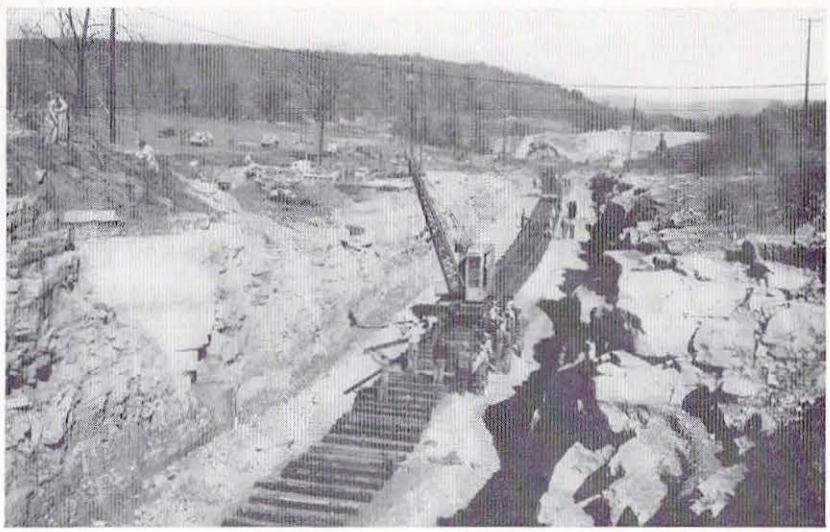
Two large grade reduction and line improvement projects were under way in 1948, between Bismarck, Mo., and Piedmont, 51 mi., on the main line to the Southwest. One of these was at Tip Top siding, which was nearing completion at the end of the year at a cost of approximately $1,500,000, and the second was at Gads hill, which, when completed during the present year, will have cost approximately the same amount. Still a third large project under way involves raising, or otherwise protecting against Mississippi floods, much of the road's 119-mi. heavy-traffic freight line in Illinois, between East St. Louis and Thebes. This project, which is being undertaken with the cooperation of the Corps of Engineers, U. S. Army, is expected to require another three or four years for completion, and is estimated to cost nearly $5,000,000.

Everywhere such line improvement work has been undertaken on the Missouri Pacific, the results have been the same—operating and track maintenance costs have been reduced, with substantial annual savings, and faster train schedules have been possible, with improved service to patrons.

In the early days of the Missouri Pacific, as in the case of most other railroads, low first cost was of

This article is adapted from an address presented at the 19th annual meeting of the Mid-South section, American Society of Civil Engineers.

A segment of the seven-mile line-change project between Hilliard, Mo., and Granite Bend, completed in 1947, where 257 deg. of curvature were eliminated and the line raised above highest flood waters



Track laying under way on a section of the Tip Top line change in Missouri. The grade crossing in the middle distance will be eliminated

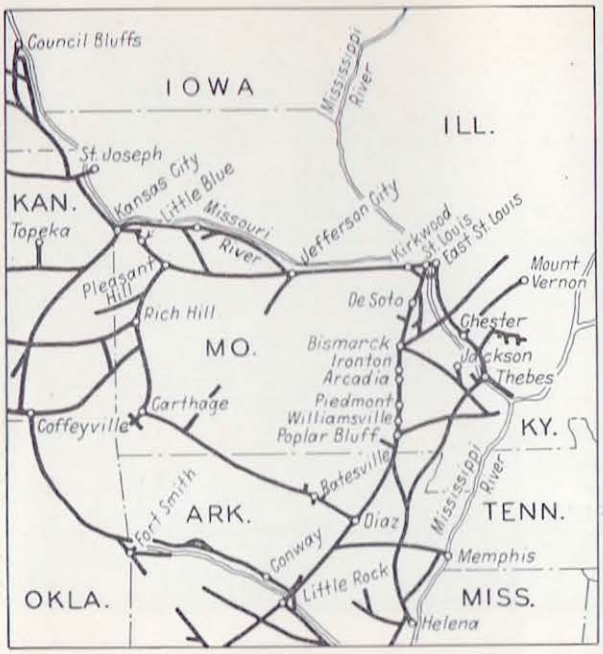
A RAILROAD

Six decades of line and grade improvement projects on the Missouri Pacific are materially improving service to the public

greater importance than economy of operation. Unless a railroad could be built cheaply, it usually could not be built at all. High operating costs could be tolerated, at least until the pioneer railroad had attracted settlers and had developed adequate traffic, because freight and passenger rates were high. But even at these high rates, the cost of both passenger and freight transportation on the railroad was far less than by other means of transportation then available.

As the country developed and traffic increased, it became desirable to improve operation and reduce operating costs. Labor costs tended to increase and rates to decline. Better track, stronger bridges and easier grades and curves became necessary to make both ends meet.

Programs on the Missouri Pacific to reduce the effect of heavy grades began in the 1880's. Building of the so-called "River Route" along the Missouri



Sketch map of the northeast section of the Missouri Pacific Lines, where for nearly sixty years segment after segment has ben improved in alinement and grade

river, between Jefferson City, Mo., and Kansas City, was such a project, although this route was not completed until the turn of the century. Another project was the construction of a new line from St. Louis southward to avoid the heavy grades of the Ozarks, the original plan contemplating a line on the west side of the Mississippi about where the Frisco is today. The Jackson branch, completed in 1884, was constructed as a link in this low-grade line.

Prior to about 1900, the old timetables referred to the "Little Rock hill." This "hill," along with others between Kansas City and Little Rock, Ark., and between Little Rock and Texarkana, Ark., was reduced about 1902. This program of grade and line revision also accounts for the several so-called "detour lines" which were built between Little Rock and Fort Smith. All but one of these has now taken the place of the original location.

At the beginning of the century, traffic had increased so much that further study was made of reducing the grades in the present line across the Ozarks from De Soto, Mo., to Piedmont. But the estimated cost of reducing these grades below 1 per cent was found to be so high that it was decided instead to build a low-grade line on the east side of the Mississippi. This Illinois line was built on a 0.3 per cent grade and it has become the Missouri Pacific's heaviest freight traffic line. Including trains operated by the Cotton Belt, it was not uncommon for 85 trains a day to move over this line during World War II, although part of it is single track. On the single-track portion train movements are authorized by signal indication rather than by train orders. This method of train operation, as applied to an extended mileage of main track (now known as centralized traffic control) was originated on another line of the Missouri Pacific in 1925 and is one of the most important transportation developments in many years.

Following completion of the Illinois line and construction of the line in the White River country, between Carthage, Mo., and Batesville, Ark., only minor new-line construction or revision of grades and alinement on existing lines was effected. But, in 1925, a program was started to provide a second main track west from St. Louis to Jefferson City, and to reduce grades on the existing line in the vicinity of Gray Summit. In 1931 this double track had been completed a distance of 110 mi. from Jefferson City to a point about 4 mi. west of Kirkwood. Grades of about 1 per cent on each side of Gray Summit had been reduced to 0.3 per cent eastward and 0.5 per cent westward. The line had been shortened more than three miles and a large amount of curvature had been eliminated, but at a cost of nearly $23,000,000.

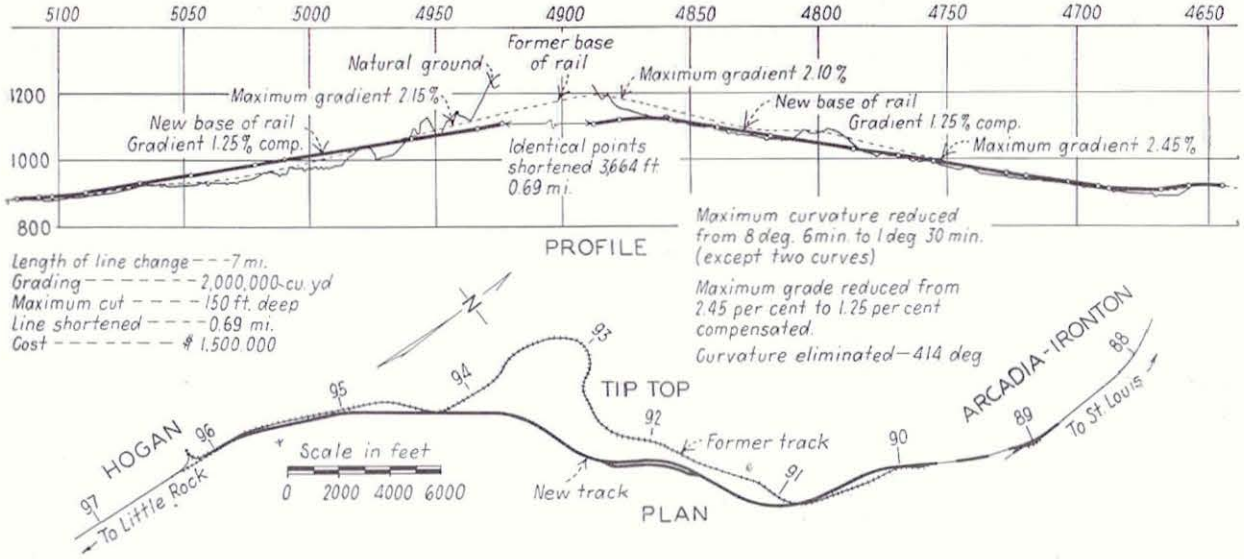
Improved Line to the West

In the fall of 1929, before double-track work from St. Louis to Jefferson City had been completed, a grade and line revision program was also started in Kansas on the line to Colorado, to improve the handling of California and Colorado perishable freight through the Pueblo gateway. The western part of this line had grades of 0.7 per cent eastward and 1.1 per cent (momentum) westward, the majority of tonnage normally moving eastward. The eastern portion of the Colorado line, through the "flint hills" of Kansas, had maximum grades of 1.5 per cent in both directions.

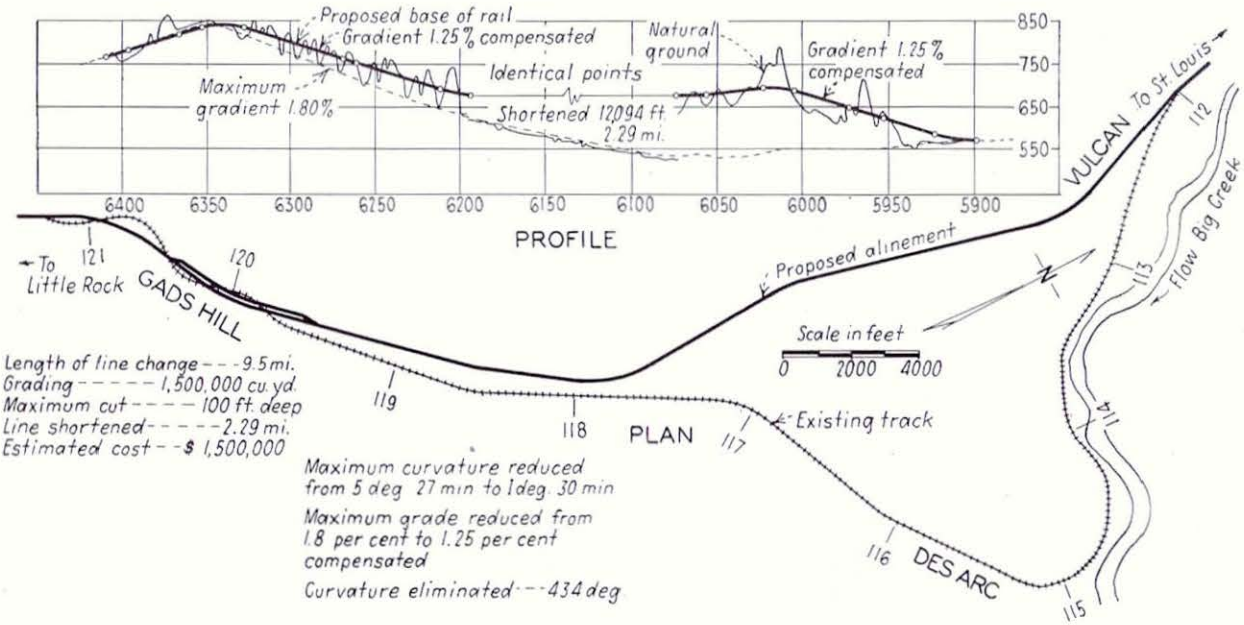
Revision of this line was completed in 1932. It provided grades of 0.7 per cent eastward and 1.0 per cent westward, and permitted handling 3,500 tons instead of 1,820 tons in trains moved eastward. Curves were reduced from a maximum of 6 deg. to a maximum of 2 deg. 30 min. (Today a maximum curve of 1 deg. 30 min. would probably be used to permit increased speeds.) All trains on this line are now being handled by 3-unit Diesel locomotives of 4,050 hp., now moving 6,000 tons in eastward trains. This program cost more than $6,000,000, and the greatest benefit from it came during World War II when there was a heavy flow of traffic westward, as well as eastward. In fact, during the war the normal eastward preponderance of tonnage was reversed.

War traffic to the West again directed attention to the line between St. Louis and Kansas City, as there still remained three miles of single track, on a 0.85 per cent grade, through the two tunnels at Barretts—the first tunnels built west of the Mississippi on any railroad—and these had limited clearance. There were also troublesome overflow problems near Pleasant Hill and poor grade and alinement in the Little Blue River valley—close to Kansas City. In the war years between 1943 and 1947 these conditions were corrected. A new double-track line was built through rock cuts 70 ft. deep to by-pass the two old tunnels west of Kirkwood and centralized traffic control was installed on the new line to give greater efficiency in handling traffic.

Tracks near Pleasant Hill were raised above flood stages and a grade and line revision was made across the Little Blue River valley. The change at Little



Sketch plan and profile of the Tip Top hill line-change project, with notes as to magnitude of the work and improvements effected



Sketch plan and profile of the Gads Hill project, showing features of this work (now under way) and the improvements contemplated

Blue, Mo., involved raising some sections of track, excavation through several rock and shale cuts, 40 to 50 ft. deep, and building five grade separations with county and state highways. This work resulted in the reduction of maximum curves from over 5 deg. to 1 deg. 30 min., and the elimination of 398 deg. of curvature, with reduction of grades from a maximum of 1.7 per cent eastward and 1.6 per cent westward (non-compensated) to a maximum of 1.25 per cent compensated for curvature. It also resulted in shortening the line by nearly one-half mile. The total cost of this latest St. Louis-to-Kansas City program was over $2,500,000.

Concurrently with this work on the primary line to the West, progress was made in improving the alinement of our primary passenger line to the South and Southwest. This line runs more or less parallel to the Black river from Piedmont, Mo., to Poplar Bluff, and is subject to some overflow during flood stages in the river. Beginning in 1944, and extending into 1947, work costing over $900,000 was performed in the vicinity of Hilliard and Granite Bend, where 7

mi. of line were placed above the highest flood water and curves were reduced from a maximum of 6 deg. 11 min. to 2 deg., while eliminating 257 deg. of curvature and effecting a reduction in distance. Additional projects along the Black river in the vicinity of Williamsville remain to be carried out at a later date in order to have the entire line above overflow.

Big Tip Top Project Nears Completion

The current program of line and grade revision is between Bismarck, Mo., and Piedmont, on the same line, and probably the most interesting of all. The distance between these two towns is 51 mi. and helper engines have been used on all of the heavier passenger and freight trains operated over it—an average of six helper engines being kept continuously in this service in this territory. Grades over Tip Top hill, south of Arcadia-Ironton, were a maximum of 2.45 per cent southward and 2.15 per cent northward, with maximum curve of 8 deg. 6 min. Grades over Gads hill, north of Piedmont, were a maximum of 1.8 per cent southward and 1.55 per cent northward, with maximum curve of 5 deg. 27 min.

Since grades on the rest of the line from St. Louis to Poplar Bluff were 1.25 per cent, or less, it was decided to cut down the grades at Tip Top and Gads hill, both northward and southward, to 1.25 per cent compensated, using curves not in excess of 2 deg. All but two of these curves are 1 deg. 30 min. or less.

Work at Tip Top, which extends over a distance of 7 mi., is now nearing completion. The main cut is about 4,000 ft. long and has a depth at the crest of 150 ft. Material in the cut consisted primarily of compacted clay, gravel and boulders, bedded so firmly that blasting was employed to permit easier loading with 2½ and 3½-cu. yd. shovels. Excavated material totaling nearly 2,000,000 cu. yd. was hauled south an average of over 6,000 ft., with 16-cu. yd. hauling units, most of it being used to provide new embankment. The maximum haul for this material was about 2½ mi.

The base of Tip Top cut was made 50 ft. wide at track level to provide adequate space on each side of the track to permit the use of off-track work equipment in maintaining side ditches. Side slopes were made 1½ to 1. While this may seem rather steep for a cut having a maximum depth of 150 ft., the character of material is such that no great difficulty is expected in future maintenance.

Vulcan to Gads Hill Change

On the north slope of Tip Top ridge the new location follows the natural slope most of the way, with the subgrade just high enough above the ground to keep safely above local drainage. However, it was necessary to make one rock cut about one-half mile long, having a maximum depth of 45 ft., where the new and old lines cross. Most of the track has now been constructed on the new roadbed and about 9,000 ft. has been placed in service on the new fill to the south. The new line is 0.7 mi. shorter than the old one and has 414 deg. less curvature.

The second major section of this program is between Vulcan and Gads Hill, a distance of 9.5 mi., and is now under way. Right-of-way has been purchased, concrete culverts are being built, and contract has been awarded covering the grading which will total about 1,500,000 cu. yd. of common and solid rock excavation. In addition to reducing the heavy grades —maximum 1.8 per cent southward and 1.55 per cent northward—this project will shorten the line by 2.29 mi. and eliminate 434 deg. of curvature. The maximum curve on the new line will be 1 deg. 30 min.

Bridge and culvert construction, as well as track work and fencing, between Bismarck and Piedmont is being handled by company forces, but grading is being done by contract. When all work has been completed the line not only will have lower ruling grades and less curvature, but will be shorter by three miles. The total cost of the grade and line revisions between Bismarck and Piedmont, when completed, will be approximately $3,300,000. Helper service will be eliminated and maintenance and operating costs will be reduced. Improved schedules and service to patrons will be possible.

Guard Illinois Line Against Floods

Still another important line improvement project on the Missouri Pacific is that now under way on the heavy-traffic freight line in Illinois. This line was built about 40 years ago on a grade line above ordinary high water, but levee construction and other improvements along the Mississippi have so restricted the channel that flood heights have been raised, and the railroad is no longer dependable during flood periods —railroad traffic having been suspended for periods of more than two weeks in 1943 and 1944, and again in 1947. To avoid recurrence of such traffic interruptions, a dependable main-line improvement program has now been undertaken in cooperation with the Corps of Engineers, on the 119 mi. of line from East St. Louis to Thebes, at an estimated cost of nearly $5,000,000.

Except for 20 mi. in the vicinity of Chester, a chain of levee districts, designed to protect rich farm lands and various towns, will also afford protection to the railroad, provided the tracks are raised at levee crossings and over the intervening local waterways. While the Corps of Engineers is raising and improving the levees around the various levee districts and raising the tracks at levee crossings, the railroad is engaged in relocating and raising the 20-mi. section through Chester, constructing the new embankment with selected fill material from the adjacent hills. Track raises at levee crossings vary from 4 to 12 ft., while the grade of new track in the Chester reach will be from 1 to 15 ft. above the old grade line.

When this project is completed some three or four years hence, the Missouri Pacific's heaviest traffic freight line will either have levee protection or will be on a grade line above the calculated flood plane of the Mississippi river resulting from floods expected to occur once in 50 years.

These programs are being carried out under my general supervision, with the able assistance of our engineer of design, W. H. Giles, the full cooperation of our chief operating officer, R. C. White, and the overall guidance of our chief executive officer, P. J. Neff.

HOW A SMALL RAILROAD SCHEDULES DIESEL LOCOMOTIVE MAINTENANCE

By E. H. HOLLOWAY
Superintendent Diesel Maintenance,
Central of Georgia

The Central of Georgia is a small operator of Diesel-electric locomotives as compared with the larger railroads in this territory. However, on the basis of information received from visitors and from performance records it feels it has had some measure of success in Diesel operation that would be of interest to others, especially the smaller railroads just starting or contemplating Diesel locomotive operation.

Switching Locomotives

The first C. of Ga. Diesel, placed in service August 18, 1939, was a 600-hp. Electro-Motive switcher. Today, the Central of Georgia has in service 23 Diesel switchers, the latest one a 1,000-hp. American Locomotive Company product put in service April 16, 1948. This fleet consists of two 660-hp. and eleven 1,000-hp. Alcos; one 660-hp. and three 1,000-hp. Baldwins and four 600-hp. and two 1,000-hp. Electro-Motives. These switchers are located at Savannah, Augusta, Atlanta, Albany, Columbus, and Macon, all in Georgia, and Montgomery, Ala., and Chattanooga, Tenn.

In respect to Diesel locomotive maintenance we consider Macon as the hub of a wheel with the spokes representing lines running in all directions to outlying points. The Diesel locomotive repair shop, as well as the principal repair shop for steam locomotives, is located at Macon. At outlying points only running repairs and daily and monthly inspections are made. For heavy repairs and annual inspections the switchers are moved to Macon in tow by freight train, accompanied by a messenger.

The switchers at all points are assigned to 24- or 16-hour service, seven days per week. No switchers are assigned to less than 16-hour service. At all locations the switchers receive a daily inspection during the operating crew's lunch period, usually on the first shift. In most cases the switcher does not come into the shop, but is given this inspection in the yard by a shop mechanic and helper sent out from the shop, sometimes by truck. Each switcher is given a monthly inspection requiring that it be taken out of service for approximately eight hours. About the same time is required for quarterly and semi-annual inspection.

One switcher located at Montgomery is operated and maintained by the Western Railway of Alabama, as a joint facility, and one switcher located at Augusta, while operated by C. of Ga. crews, is maintained by the Charleston & Western Carolina.

Our availability record is based on each switcher meeting its assigned number of daily shifts and it is shown unavailable when it fails to meet this assignment and must be relieved by steam power for inspection repairs. The maintenance and operation cost is on an hourly basis. The record for Diesel switchers since ownership, beginning August 18, 1939, through November 1948, is shown in the table.

Handling Passenger Units

All of our Diesel road locomotives are Electro-Motive equipment, consisting of ten 2,000-hp. passenger and nine 1,500-hp. freight units. All are "A" units. The maintenance on these locomotives is performed at Macon and only trip inspection and necessary running repairs are made at outlying points. We use the slide rule method of progressive main-

An abstract of a paper presented before the Southern & Southwestern Railway Club January 20 at Atlanta, Ga. That part of Mr. Holloway's paper which dealt with the details of Diesel engine maintenance is not included in this abstract.

DIESEL MAINTENANCE AND OPERATING COSTS

Switching locomotives, per hour

Loco.	Availability* per cent	Repairs, dollars	Fuel oil, gal.	Lube oil, pints	Other supplies, dollars	Total, dollars
600-660 hp.	92.7	.629	6.60	.77	.017	1.137
1,000 hp.	93.6	.717	7.54	.72	.015	1.294

Passenger units, per mile

Miles Assigned	Miles operated	Availability,* per cent	Repairs, dollars	Fuel oil, gal.	Lube oil, pints	Other supplies, dollars	Total, dollars
2,882,417	2,882,417	100.0	.087	1.89	.15	.002	.261

Freight units, per mile

Miles Assigned	Miles operated	Availability,* per cent	Repairs, dollars	Fuel oil, gal.	Lube oil, pints	Other supplies, dollars	Total, dollars
704,118	704,118	100.0	.045	2.02	.14	.002	.265

*See definition in the text.

tenance based on 2,500 miles for freight and 3,000 miles for passenger.

The ten passenger units average 13,400 miles per month per unit. Nine of these are assigned as a single- and four double-unit locomotives to scheduled trains. The remaining unit is used as a swing and shop unit, relieving the other nine units for mileage inspection and repairs. The availability record is based on each unit filling its assigned schedule and being exchanged at Macon for the swing unit without any loss of schedule assignment or relief by steam power.

Seven passenger units were placed in service in August, 1946, one unit in October, 1946, and two units in June, 1948. The performance record and cost of maintenance and operation per mile for the ten passenger units since ownership, August 18, 1946, through November 1948, is given in the table.

Freight Assignments

The nine freight units average 9,000 miles per unit per month. Eight units are assigned as double-unit locomotives to scheduled trains. The remaining unit is used as a swing and shop unit, relieving the other eight units for mileage inspection and repairs. The swing unit, when not required for relief duty, is assigned to a scheduled train. The availability record is based on the double-unit locomotives filling the assignment to scheduled trains and being exchanged at Macon one unit at a time for the swing unit without any loss of schedule assignment or relief by steam power.

Four freight units were placed in service in December, 1947, and five units in May, 1948. The performance record and cost of maintenance and operation per mile for the nine freight units since ownership December 12, 1947, through November, 1948, are shown in the table.

In addition to maintaining 23 switchers and 19 road locomotives at Macon, as of October 15, 1948, we have assumed complete maintenance of one 1,500-hp. Electro-Motive freight unit owned and operated by the Georgia Railroad between Macon and Camak. The maintenance on this locomotive is set up and performed exactly as if it were a Central of Georgia locomotive. However, it requires relief by steam power for mileage inspection and repairs. This locomotive will average 8,500 miles per month.

The Diesel locomotive shop at Macon* was formerly a part of the boiler and tank shop. This shop building is now completely separated from other departments, and used only for the specialized work of Diesel locomotive maintenance with its own shop personnel.

The force on the first shift with a six-day assignment is comprised of one foreman, five machinists and helpers, two electricians and helpers, two machinist apprentices and helpers, one pipefitter and helper and two laborers. The Sunday and holiday assignment on the first shift includes two machinists and helpers, one electrician and helper, one pipefitter and helper and one laborer. A skeleton second shift force on a seven day assignment includes one machinist supervisor and helper, one machinist and helper, one electrician and helper and one laborer. There is no third shift in the Diesel shop. Trip inspections and running repairs on the third shift are performed by steam-locomotive roundhouse forces.

The Macon Diesel shop building is 260 ft. long by 70 ft. wide, with elevated platforms and depressed floors. It has three inspection-track pits 150 ft. long, and one truck-repair pit 32 ft. long. The shop is equipped with a 30-ton overhead traveling crane servicing the entire shop area and a Whiting 90-ton lowering and transfer table 23 ft. long servicing the three inspection tracks. It has the usual cleaning facilities for engine parts and filters on the elevated platforms and an outside cleaning vat for heavy truck parts, wheels, gears and axles. The lubricating oil is stored outside the shop in steam-heated tanks and is pumped into the shop. Drained oil from locomotives is pumped to an outside storage tank.

At the present time the Central of Georgia is assembling machinery and equipment for an electrical repair shop, and expects within the next few months to be in a postition to make all necessary repairs to Diesel-locomotive electrical equipment. This equipment, such as traction motors and main generators, is being repaired by outside shops at the present time.

*For a description of this shop see page 430 in *Railway Age* of September 13, 1947.

"Why, I always thought milk came from the SOO LINE!"

Honey, a lot of milk does come from those refrigerated Soo Line railroad cars. Butter, eggs and cheese, too. Operating in the heart of America's dairyland, the Soo Line last year sped 10,545 carloads of farm-fresh dairy products to dozens of distribution centers.

In this manner, dependable Soo Line trains are a rolling market basket for Northwest producers, starting these important products on their journey to consumers everywhere.

One more way in which the Soo Line is

Your *Working Partner* 7 Days a Week

SOO LINE

Advertising proof courtesy Knox Reeves Advertising, Inc.

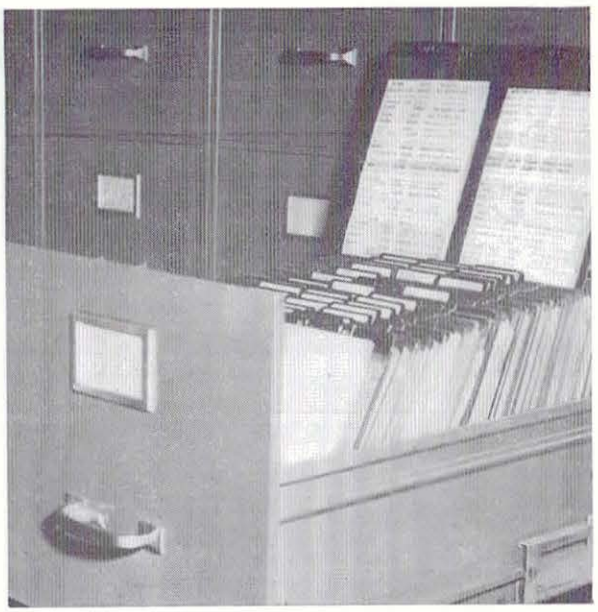
The Minneapolis, St. Paul & Sault Ste. Marie has, for the past two years, pursued an extensive advertising campaign in local papers along its line and in selected agricultural periodicals. The cartoon-type advertisement depicted appeared in a number of agricultural magazines

Service to shippers speeded, processing costs cut, by code-numbering and visible index filing

S. P. IMPROVES FREIGHT CLAIM HANDLING

A new claim code-numbering system combined with a visible indexing method has produced favorable results for the freight claim department of the Southern Pacific. Not the least of the advantages realized is a decrease of about two cents per claim in the cost of processing, exclusive of investigation, although improved service was the primary objective sought from the installation. The chief reasons for this decrease in costs are that, through the use of pre-carboned sets of forms, the same typing operation produces acknowledgment of the shipper's claim, an index card for alphabetical filing, and a journal sheet or register for numerical filing, making cross-reference filing possible.

Filing the index cards on visible-type panels speeds and simplifies their use. Visibility of cards makes policing of over-age claims by supervisors both easier and more efficient; also a review of the panel indicates at a glance the status of any particular claim account. The system makes possible the transfer of clerks to take care of shifting peak registrations in three bureaus handling, respectively, perishable, nonperishable or overcharge claims. Fatigue of file operators also is lessened, making for speedier and more efficient workers. Files which are astray are more quickly located because absence is detected sooner. This all adds up to earlier disposition of claims and consequent customer satisfaction.



Panel of visible index cards in file drawer. Guides to which cards are attached can be seen

Not all claims can be prevented, but if they are handled promptly and efficiently the railroad not only has a better idea of where it stands financially at any given time, but claimants are better satisfied. The importance of economical and fair disposition of all cases is measured by the fact that the Southern Pacific registered over ¼ million claims during 1946, while payments totaled close to $9½ million.

In its effort to speed up the paper work in claims handling, the Southern Pacific's freight claim agent, Heber Smith, installed the system here described. As soon as a claim is received a post card acknowledgment is typed. As mentioned, duplicate and triplicate are prepared at the same time for filing. The original of this three-part form shows the shipper's claim number, the number assigned by the Southern Pacific, date of receipt, and name and address of claimant as well as essential data as to the claim. It is ready for mailing when detached.

The key to the successful use of the second part

SOUTHERN PACIFIC COMPANY
65 MARKET ST.
SAN FRANCISCO 5, CALIFORNIA
CLAIM ACKNOWLEDGMENT

YOUR CLAIM NO.	S. P. NO.
3846	411345
AMOUNT	$33.67
COMMODITY	oranges
CAR NO.	PFE 56478
W. B. NO. & DATE	2248
ORIGIN	STOCKTON
DESTINATION	OAKLAND

MARTIN J. HARDING
P.O. BOX 167
STOCKTON, CALIF.

S-6468

3846 411345
$33.67
oranges
PFE 56478
2248
STOCKTON
OAKLAND

MARTIN J. HARDING
P.O. BOX 167
STOCKTON, CALIF.

Acknowledgement card above and visible index card below. Since forms are supplied in strips of five, triplicate copy (not shown here) remains a continuous strip for journal register

of this form—a visible index card—lies mainly in the code assigned as the Southern Pacific claim number. This is a six digit code, with every number significant. The first three digits designate the "work day" on which the claim was received. October 2, 1947, was the first day for registering claims with the new code. Hence, the claims received that day carried 001 for the first three claim number digits. Similarly, claims received October 3 became 002. Obviously, 999 work days can thus be recorded before starting over with 001. This serves to show the age of all pending claims at a glance. For example, today might be work day number 350. On any index card, 150 for the first three digits of the claim number would instantly indicate that the claim is 200 days old. The second three digits disclose: (1) kind of claim (overcharge, perishable or non-perishable) supplementing use of different color cards; and (2) the number of claims received each day in the three classifications. The fourth digit thus indicates the type of claim and whether filed with San Francisco or Los Angeles office. At San Francisco, 1 or 2 means overcharge, 3 or 4 perishable, and 5 through 9 non-perishable. If the fourth digit is 0 the claim was registered at Los Angeles. This arrangement permits recording up to 200 claims daily for overcharge items; 200 daily for perishables and 500 for non-perishables, and 100 in Los Angeles. A claim number 093271 thus would represent a claim for an overcharge received at San Francisco on the ninety-third day the system was operating and the 171st such claim acknowledged on that work day. Daily, the work day code is advanced one digit, and the last three digits revert to 100 for overcharge, 300 for perishable and 500 for non-perishable.

Visible index cards are immediately filed alphabetically on panels which accommodate 64 cards, each of which shows visibly: "Claimant's Number"—"S.P. Claim Number"—"Claimant's Name". These visible index panels are permanently housed in three-drawer file cabinets and provide a cross reference from shipper's name to the claim number. They also denote at a glance the age of the claim, and provide instant identification as to the section which has the claim file for processing, since "overcharges," "perishables" and "non-perishables" are processed by separate groups of people. In addition to segregation as to type of claim by number, the color of the cards also indicates claim groups, with white cards for non-perishable items, blue cards for overcharges, and cherry colored ones for perishable claims.

When a claim has been settled, the corresponding visible index card is removed from the claims-pending panel and filed vertically.

Communication . . .

Railroads Sought Patrons at Materials Handling Show

PHILADELPHIA, PA.

TO THE EDITOR:

The editorial, "Business for the Asking," on page 37 in *Railway Age* of February 12, commenting on the passenger solicitation methods of the railroads and the air lines at the Materials Handling Exposition, included the statement, "One railroad passenger representative canvassed the exhibitors." I believe that must have been written without full knowledge of the facts.

Division passenger agent M. B. Winn of the Pennsylvania's Philadelphia offices had one representative cover the convention thoroughly for five full days and on one day two Pennsylvania passenger representatives were assigned to the convention. These two men made more than 400 contacts and obtained 75 reservations. As a result of their solicitation and the efforts of other passenger representatives the Pennsylvania arranged for and sold 19 extra sleepers to Chicago and various points on the railroad. This travel was in addition to the hundreds of visitors who traveled to and from the convention on regular trains.

HAROLD L. WIAND
Publicity Representative
Pennsylvania Railroad

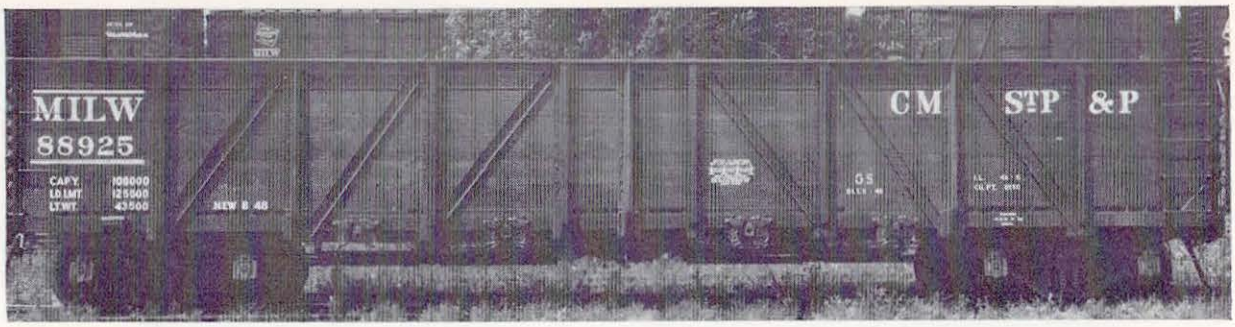
[*Railway Age* regrets having erred in saying that "one railroad passenger representative canvassed the exhibitors . . . the day before the convention closed," and this letter is gladly published to set the record straight. The purpose of the editorial was to point out that the air lines' merchandising methods—unlike the railroads'—placed their wares before each exhibitor, and also before each visitor of the thousands attending, every time he entered or left the hall.—EDITOR]

New Book . . .

FIELD ENGINEERING—TEXT AND TABLES. By Searles, Ives and Kissam. Twenty-Second edition. 422 pages. Illustrated. 4½ in. by 6½ in. Bound in leatherette. Published by John Wiley & Sons, Inc., New York. Price, text section, $3.50, Tables, $3.50. Combined volume $6.50.

In the most recent revision of this well-known field manual, the author — Phillip Kissam, professor of civil engineering, Princeton University — has clarified the text thoroughly and brought it up to date. Many passages have been rewritten, more than 40 new illustrations have been included and considerable new material has been added, including a new first chapter outlining the fundamentals of railway and highway location. In short, the book has been completely overhauled.

Of special interest to railway men are a discussion of the advantages of air mapping, new methods of completing the compound curve theory and for positioning turnouts on curved track, a complete theory of the vertical curve and an improved method of string lining.



The first Milwaukee Road drop-bottom composite gondola car equipped with Nailable Steel Flooring ready to enter general open-top shipping service

DROP-BOTTOM GONDOLAS EQUIPPED WITH NAILABLE STEEL FLOORING

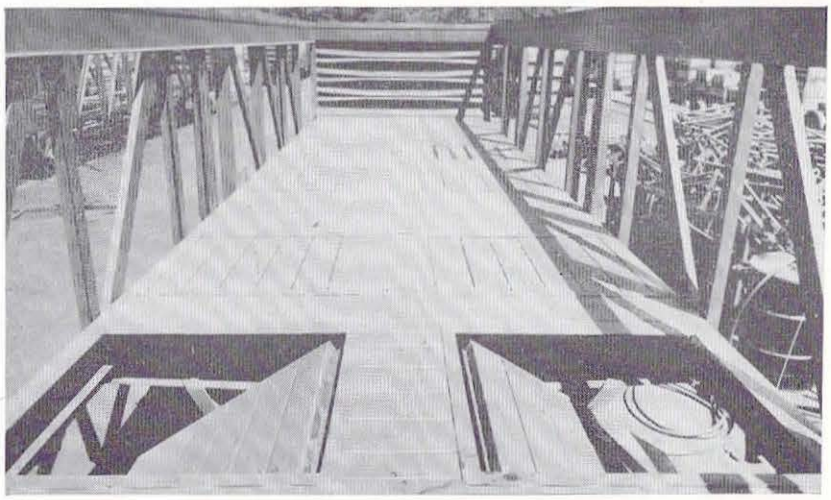
The Chicago, Milwaukee, St. Paul & Pacific has recently completed the installation of Great Lakes Nailable Steel Flooring in 25 drop-bottom gondola cars. The cars are part of a building program of 2,800 composite gondolas built at the road's car shops in Milwaukee, Wis. The entire group of cars, including the 25 equipped with the steel flooring, are intended for general service requiring open-top cars.

The cars are of composite construction having steel ends and wooden sides. The nominal capacity is 50 tons. For the steel-floor cars the load limit is 125,500 lb. and the light weight is 43,500 lb. For the wooden floor cars the load limit and the light weight are 126,900 lb. and 42,100 lb. respectively. The inside length is 41 ft. 6 in., the width 9 ft. 6¼ in., the sides are 5 ft. high, and the capacity is 1,990 cu. ft. on all cars.

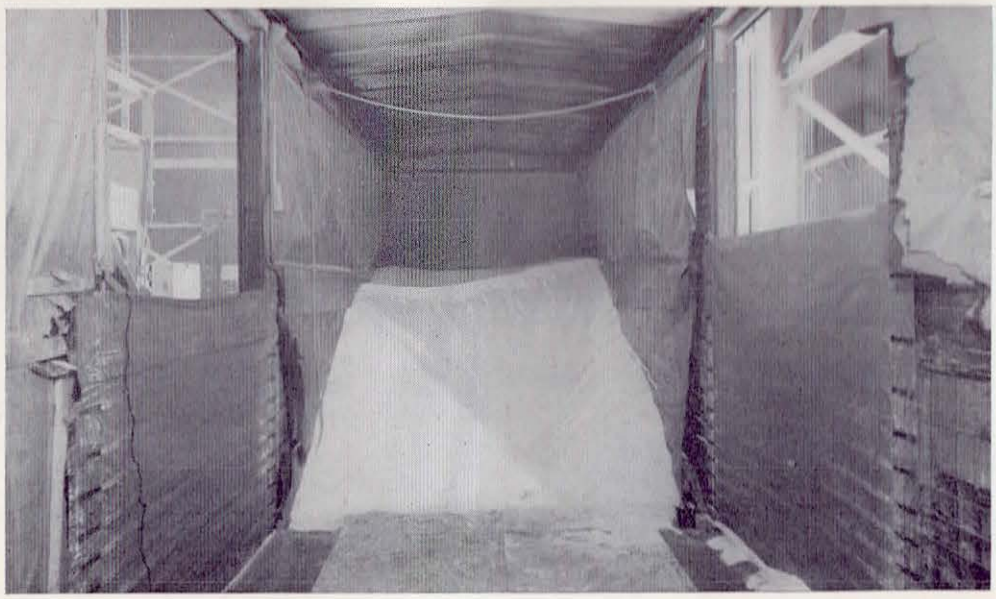
Three "firsts" are credited to those cars which are equipped with the nailable steel flooring. It is the first time that this flooring has been laid under car-building conditions, the first case in which the flooring has been pre-assembled prior to its application to the car, and the first installation of this type of flooring to a drop-bottom car.

Major sections of the steel flooring assembled prior to application to the car include the end panels which extend beyond the drop doors on either end of the car, the large center section between the two pairs of drop doors nearest the center of the car, and the small sections which fit between each pair of doors. Bridge welding is used for joining the individual channels together in these assemblies to save time and welding rod. The drop floors are fitted up and clamped in jigs; while thus held they are bridge welded along the bottom.

The pre-assembled sections are welded to the side sills, the center sills or to one side of a door hinge as is appropriate for the part being applied. After all assemblies have been secured to the car a plastic compound is driven through a hose by an air-operating pump to fill the nailing grooves and thereby reduce leakage of fine bulk freight.



The steel floor of the drop-bottom gondola with two of the drop doors in the unloading position. Before going into service the nailing grooves are filled with a self-sealing plastic compound to prevent leakage of fine bulk freight



PAPER RETAINING DOORS CUT BULK-COMMODITY SHIPPING COSTS

Illinois Central tests on trainload shipments of alumina indicate substantial savings through use of kraft liner-board doors reinforced with steel strapping

Steel strap-reinforced, heavy-duty kraft paper retaining doors are providing a highly satisfactory and efficient solution of serious difficulties encountered in shipping many bulk commodities in box cars. This door was developed for the Illinois Central to meet the need for a better, lower cost method of loading and shipping alumina powder moving from the Baton Rouge (La.) processing plant of the Permanente Metals Corporation to its reduction plants in Washington state.

The alumina, a fine, snow-white powdered chemical, moves in trainload lots—usually about 32 cars to a shipment. The average car is loaded to about 123,000 lb. The prevention of transit losses in the long-haul movement of the elusive, sifting, fine-textured alumina has challenged the ingenuity of both the shipper and the carriers. The practice had been to barricade the car side openings with wooden doors similar to grain doors. This equipment was furnished by the railroad at a cost in excess of $10 a car (based on third usage of each door), and transportation thereon was paid for by the shipper as dunnage. Because the alumina shipments are interline, the wooden doors used in this traffic were not available for re-use by the originating carrier. Further expense was involved because the Permanente shipping department found it wise to cushion the wooden doors with corrugated boards at a cost of about 32 cents per car.

The characteristics of the load and the loading methods indicated that one-piece reinforced Signode retaining doors would provide a satisfactory solution. Such a door, developed by the field engineering and research departments of the Signode Steel Strapping Company, Chicago, was tried. The first application was made about a year ago, and the success of the experiment led to the exclusive use of these doors in the Louisiana-Washington alumina movement.

The doors are made of ¾-in. by 0.02-in. steel straps, hot-laminated into position between two sheets of water-repellent, heavy-duty kraft liner board, using a non-hygroscopic (non-water absorbing) asphaltum binder as the laminating adhesive. The straps are spaced to provide the greatest strength at the point of greatest strain. Three heights of doors cover a wide range of applications:

7 ft. 6 in. by 36 in.
7 ft. 6 in. by 48 in.
7 ft. 6 in. by 72 in.

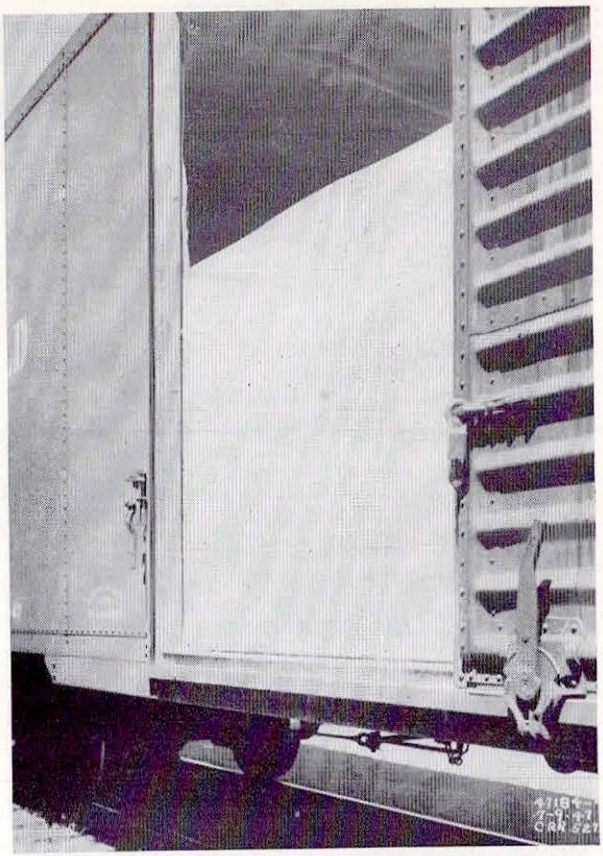
The paper doors are light in weight and are easy to handle, store, and apply. The largest of the three sizes weighs only 10 lb. Savings in dunnage run as high as 80 per cent.

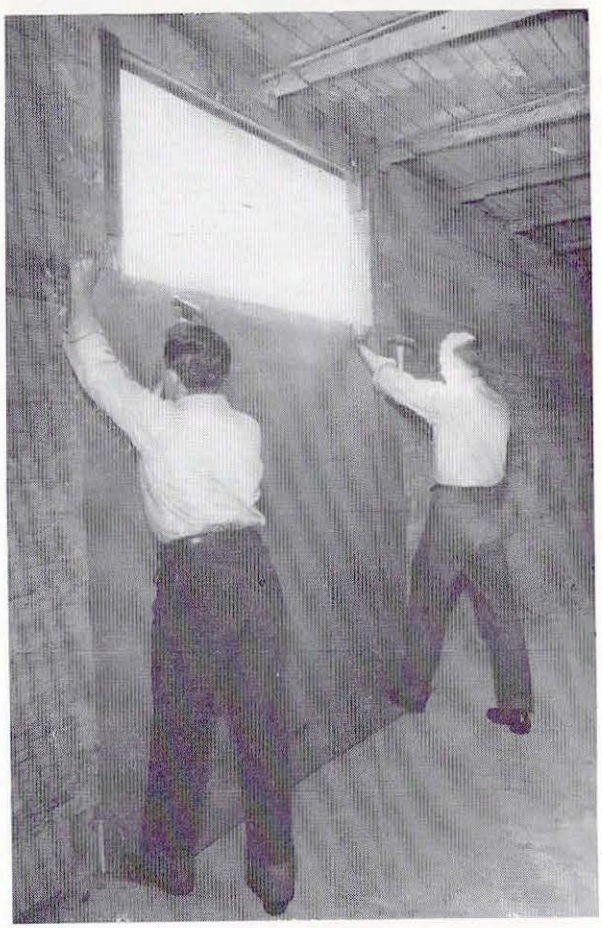
To apply the doors, only hammer and nails are needed; no special tools are required. The steel straps are prepunched for fast nailing application. Double-headed nails are recommended as their use permits

Facing page—Interior of test car, partially unloaded after cross-country shipment. Doorway leakage is prevented by "tension-nailed" side flaps and long floor flaps

Right—Signode retaining doors applied to a car loaded with 123,000 lb. of alumina. The kraft paper barricade is reinforced with steel strapping

Below right—The paper retaining doors are applied without special tools. Steel strap reinforcement in the paper prevents bulging and keeps the paper from contacting the car door when it is opened or closed





easy removal with a minimum of damage to car door posts, a feature of especial concern to the carriers and the next user of the car.

Initial Tests in Alumina Traffic

In the first test at Baton Rouge, car I.T.C. 6323 barricaded with the Signode doors, was loaded with alumina. The car was coupled to a switch engine and subjected to continual switching until the following morning, when it was spotted back at the Permanente plant. Rigorous inspection revealed that the lading was in perfect order and that there had been no loss of lading. Cars I.C. 28666 and C.R.R. 5272 were then similarly barricaded, loaded and shipped along with the I.T.C. 6323 to the Permanente Metals reduction plant at Mead, Wash., where, on arrival, they were inspected by R. B. Hersey of Permanente and a representative of the I.C. In a report to J. P. Duke, traffic manager of Permanente at Baton Rouge, Mr. Hersey said:

"Upon opening the cars we found the contents to be in perfect condition. Pictures of the cars were taken immediately upon opening the doors, when the cars had been partially unloaded, and after unloading. These pictures show clearly the satisfactory arrival condition . . . . The doors would be very handy for us in that our handling and disposal of them would be comparatively simple . . . . Loss of alumina through leakage around the doors would be all but eliminated."

Subsequent tests and results in regular service have demonstrated to the satisfaction of the shipper and the carrier that the new type doors are a definite forward step at a considerable saving.

The original tests were conducted under the supervision of M. D. Partelow, superintendent, weighing, inspection, demurrage and storage, Illinois Central, and C. N. Beard, assistant work manager, Permanente, with approval of S. C. Knight, assistant general traffic manager of Permanente at Oakland, Cal., a leader in the search for better shipping methods.

The one-piece doors, reinforced with steel strappings, have subsequently been used by other railroads on more than 250,000 carloads of bulk commodities, such as soda ash, salt, silica sand, cement, phosphate, lime, borax, potash, bentonite, and kaolin, and a similar door, especially designed for barricading grain, reportedly is proving very satisfactory.

Above—Following the first pass by a wedge plow, a Jordan Spreader widens a cut and ditches it to provide for drainage when melting starts. Wing at left is extended and widening the cut. The location is Ainsworth, Neb., on the North Western

Left—A rotary plow opens the Burlington's St. Francis branch in northwestern Kansas

WESTERN ROADS WAGE PROLONGED

Drifts towered higher than steam locomotives and stalled trains in Nebraska

Railroads serving the entire territory generally west and north of Omaha, Neb., are just getting back to normal after battling what probably has been the most severe and prolonged winter in their history. Toward the end of November, 1948, heavy snow and sleet storms occurred in the Central Western states. Further storms followed in the same territory and farther to the north and west on December 29, and again on January 2 and 3. From that time on, until mid-February, the Central Western, Mountain and Northwestern states suffered a series of blizzards of extraordinary intensity. When precipitation ceased, winds of velocity as high as 60 m.p.h. caused "ground blizzards" in many areas which undid much of the work the railroads had accomplished in opening lines.

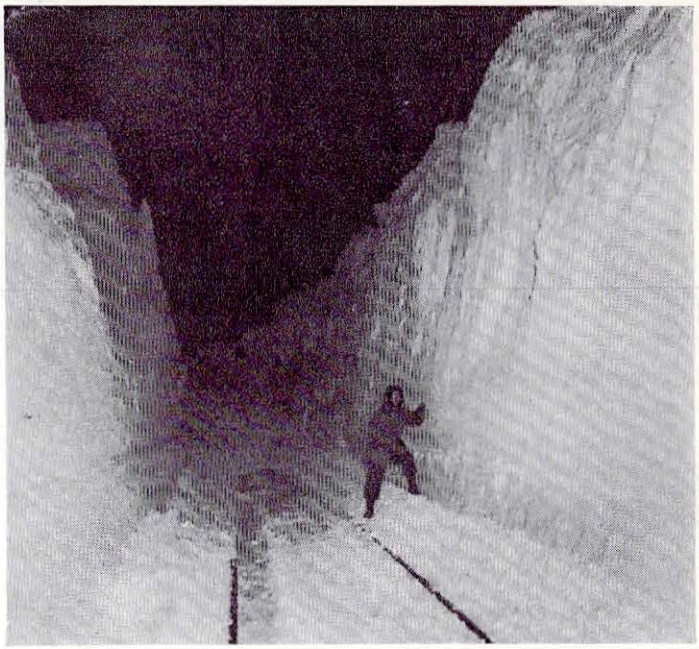
Left—Rotary plow removes new snow which has drifted into pass cleared through cut at Eli, Neb., on the C. & N.W.

Right—Bulldozers widen the cuts on the Burlington's St. Francis branch. Much of the lower strata is ice

BATTLE WITH RECORD SNOWS

All available equipment and personnel were marshalled in the storm areas. Rotary plows, wedge plows, Jordon spreaders and spreader-ditchers, flangers and the more conventional snow-fighting equipment were augmented with bulldozers and on-track and crawler cranes. The railroads were called upon to move large quantities of emergency equipment and supplies for the Fifth Army's "operation snowbound," and in turn were furnished Army equipment, particularly bulldozers, to aid in conducting their own battle with the elements.

The accompanying illustrations show in small measure how two of the "granger" roads—the Chicago & North Western and the Chicago, Burlington & Quincy—struggled to keep their lines open.



Drift west of Harrison, Neb., dwarfs one of the workers. The plow has stalled, backed out, and is ready for a second run

Below left—A doubleheaded freight stalled in southern South Dakota. Below right—A wedge plow bucks heavily packed snow between Dallas, S. D., and Colome, on the North Western

DEATHS IN RAILROAD ACCIDENTS AT 61-YEAR LOW IN '48

Record pointed up in I.C.C. bureau's "Monthly Comment," which also included figures indicating that the passenger fatality rate of air lines in last year's first nine months was nearly 15 times that of the railroads; other articles review 1948 financial results and report on equipment obligations due in 1949 and on the postwar traffic of transcontinental roads

Last year's fatalities in railroad accidents of all kinds were at the lowest annual level of the entire 61-year period, going back to 1888, which is covered by the Interstate Commerce Commission's accident records. This was pointed out by the commission's Bureau of Transport Economics and Statistics in the latest issue of its "Monthly Comment," which also analyzed railway financial results of 1948 and contained other articles on equipment obligations due in 1949 and the postwar traffic of transcontinental railroads.

The review of the last year's accident statistics included figures showing comparative passenger-fatality rates (passenger deaths per 100 million passenger-miles) of the railroads and the regularly-scheduled domestic air lines. The air-line rate for last year's first nine months was nearly 15 times as high as that of the railroads—1.8 as compared with 0.123. Eighty-three passengers died in air-line accidents of the 9-months period, while 39 railroad passengers were killed in train and train-service accidents of the same period. As noted in *Railway Age* of February 19, page 53, train and train-service accidents of last year's entire 12 months resulted in deaths of 42 passengers, as compared with 65 deaths in like 1947 accidents.

The 61-Year Low

The 61-year low was the 1948 total of 3,774 fatalities in railroad accidents of all kinds. The peak of such fatalities was reached during the fiscal year ended June 30, 1907, when 11,839 persons were killed, the bureau said. "This number," it added, "was more than three times the total for 1948 although the volume of traffic handled in 1907 based on traffic units ... was only about 40 per cent of that in 1948." As compared with 1947, when 4,165 were killed, the 1948 fatalities were down 9.4 per cent. Except for "travelers not on trains," where deaths were up from 10 to 12, the 1948 fatalities were below those of the previous year in each of the seven categories into which they are grouped.

Meanwhile, the number of persons injured in railway accidents of all kinds dropped 11.7 per cent—from a 1947 total of 48,797 to 43,068 in 1948. The number of injuries reported, as the bureau put it, "followed a pattern similar to that for fatalities, the number declining for each class of persons except 'travelers not on trains,' which showed an increase of 2.4 per cent."

The bureau's review of 1948 financial results noted first that last year's gross revenues of the Class I line-haul steam roads were $9,671.6 million—"the largest reported by these carriers for any year in railroad history exceeding by nearly $235 million the previous peak of $9,436.8 million in the war year 1944." Operating expenses, however, "also reached an all-time peak of $7,471.6 million." The bureau attributed last year's "high level of revenues" to a "heavy volume of peacetime traffic combined with substantial increases in rates, fares and charges" authorized by the commission.

Comparing 1948 with 1941, the bureau pointed out that last year's net railway operating income of $1,002.4 million was only 0.4 per cent higher than that of 1941, "despite the huge increase (80.9 per cent) in revenues." As compared with the 1947 figure of $780.4 million, the 1948 net railway operating income was up 28.4 per cent. "During the past 20 years," the bureau said, "the net railway operating income of Class I roads has exceeded $1 billion in only 5 years—1929, the war years 1942-1944, and 1948. Notwithstanding this favorable showing of the Class I carriers as a whole in 1948 there were still 13 of these roads which reported net railway operating deficits totaling $17.3 million."

Last year's estimated net income, after all charges, of $711 million compares with a 1941 net of $501.4 million. The much higher level of net income in 1948 than in 1941, despite the slight change in the amount of net railway operating income, was found to have been due "largely" to the decrease in fixed charges. Such charges for 1948 were estimated by the bureau at about $426 million, as compared with 1941 charges of $619.6 million.

The analysis of 1948 results by regions and districts showed that in each of the territories the net railway operating income was above that of the previous year, the increases ranging from 7.3 per cent in the Pocahontas region to 55.1 per cent in the Eastern district. In comparison with 1941, however, the only increase was in the Western district, up 17.5 per cent; decreases in other territories ranged from 1.2 per cent in the Southern region to 14.3 per cent in the Eastern district.

1948 Net Compared to 20-Year Average

The 1948 net income after all charges was 2.5 per cent below that of the previous year in the Pocahontas region, but all other territories showed increases as follows: Eastern district, 117 per cent; Southern region, 57.1 per cent; Western district, 28.7 per cent. As compared with 1941, there were increases of 133.9 per cent in the Western district and 30.8 per cent in the Southern region; and decreases of 8.2 per cent in the Pocahontas region and 2.2 per cent in the Eastern district. Another tabulation of net income figures compared the 1948 net with the average for

the 20-year period, 1929-1948, the 20-year-average for all Class I roads being $334.6 million. Their 1948 net income was 112.5 per cent above that 20-year average, the range of increases by territories being from 19.6 per cent for the Pocahontas region to 192.9 per cent in the Southern region. During the period covered by the 20-year-average figures, net deficits were reported for the Western district in 8 years, for the Southern region in 6 years, and for the Eastern district in 5 years.

Other figures showed that, in terms of their proportions of the country's freight revenue, there was, as the bureau put it, "an almost exact reversal of the positions of the East and West" between 1941 and 1948. In the latter year, freight revenue in the Eastern district had decreased to 38.1 per cent of the U. S. total from 41.9 per cent in 1941, but the Western district had risen to 41.5 from 37.5 per cent. As to passenger revenue, the Western district increased its proportion by 1.9 percentage points (from 31.2 to 33.1 per cent) in 1948 over 1941, while the Southern region showed a drop of 1.8 points—from 14.8 to 13 per cent. Meanwhile, the Eastern-district roads continued to collect more than half of the passenger revenues, their respective 1941 and 1948 proportions being 51.2 per cent and 51.3 per cent.

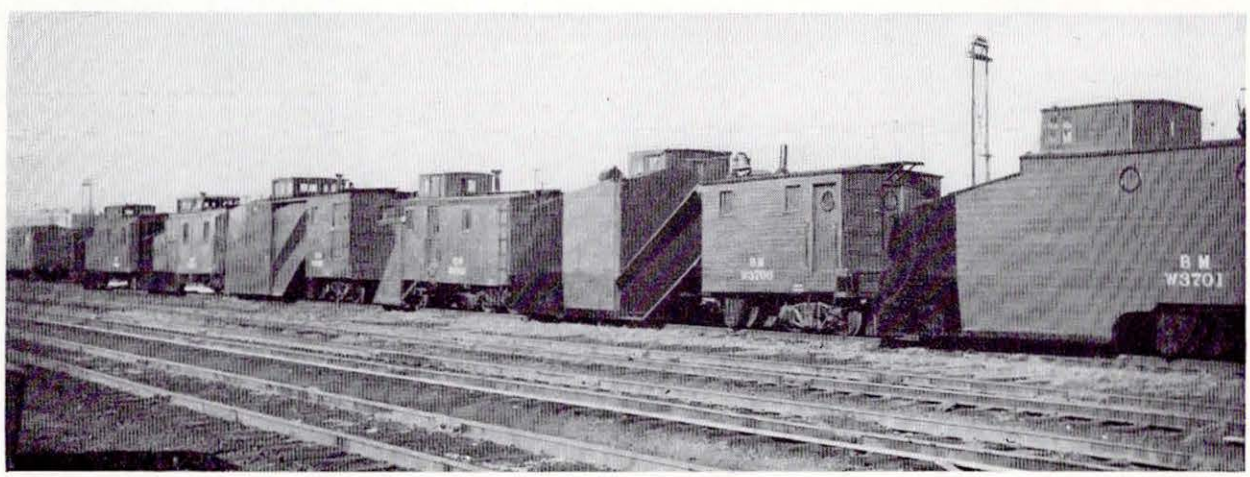
$209.3 Million Due on Equipment in '49

The 1948 operating ratio for Class I roads as a whole was 77.3. This compared with 78.3 in 1947, the 1948 ratios showing improvement over those of the previous year in all three regions of the Eastern district and in the Southern and Southwestern regions; but in the Pocahontas, Northwestern and Central Western regions the 1948 ratios were higher than those of the preceding year. Meanwhile, all of the 1948 territorial ratios were "much higher" than those of 1941, the bureau noted. Its further comment on the ratios included the following: "During the past 20 years, except for the war years 1944 and 1945, the Pocahontas has always shown the lowest regional operating ratio, and usually by a considerable margin. In 1948, however, the Southwestern region ratio (72.4) was only 0.1 percentage point higher than that of the Pocahontas."

The article on equipment obligations included a table showing that Class I line-haul roads must meet 1949 payments totaling $209.3 million on equipment trust certificates, conditional sales agreements, and other contracts covering the purchase of rolling stock. In addition, the bureau said, those roads "will have funded debt (Account 755) maturities of about $150 million" during the current year. The data as to equipment obligations were based on a summary of replies to a statistical circular (No. 36) issued by the commission on January 11. They show the territorial distribution of the $209.3 million total as follows: Eastern district, $84.5 million; Pocahontas region, $13.3 million; Southern region, $35.6 million; Western district, $75.9 million.

The article on the traffic of transcontinental roads compared the recent freight and passenger business of seven such lines with their business of the World War II period, the comparison being shown on a chart. The seven roads are the Atchison, Topeka & Santa Fe; Chicago, Milwaukee, St. Paul & Pacific; Great Northern; Northern Pacific; Southern Pacific; Union Pacific; and Western Pacific. As read by the bureau, the chart's general showing is that the volume of work performed by those roads in their freight operations reached a peak in 1944, when the gross ton-miles totaled 390.2 billion, 80.8 per cent above the comparable 1929 total. Since 1944, the volume "has decreased gradually, barring a sizeable dip in 1946, to 344.2 billion gross ton-miles in 1948, or 59.5 per cent above the 1929 performance."

Meanwhile, revenue passenger-miles on the seven roads dropped from a World War II peak of 24.1 billion in 1945 to an estimated 8.2 billion in 1948. The latter is nearly equal to the prewar record of 8.4 billion passenger-miles attained in 1920; and, the bureau said, "it is well above the traffic of any year between 1920 and 1942, despite the increased competition of other means of transport, particularly the private automobile."



Boston & Maine snow plows on a siding after being reconditioned and painted

NEW AND IMPROVED PRODUCTS OF THE MANUFACTURERS

The Lavalux installed in a new streamliner coach

RAILROAD LAVATORIES

Two railroad-train lavatories of easy-to-clean vitreous china with controls designed so that passengers can wash in running water without the necessity of filling a basin that may have been soiled by a previous user, have been developed by the Crane Company, 836 South Michigan avenue, Chicago 5. Known as the Lavalux and the Sanicor, a foot pedal controls the flow of water in each, and a hand valve mounted on the top shelf of the lavatory makes it possible to adjust the water to the most comfortable temperature.

Water is supplied through a single spout, equipped with a spray to prevent splashing when the water is running. A pop-up plug, with an operating handle back of the spout, is incorporated for filling the basin when necessary.

The Lavalux is a flat-back lavatory for wall mounting with overall dimensions 18 in. x 15 in. The Sanicor is a corner lavatory, 17 in. x 17 in. overall. Both are available in white or in a variety of colors.

The Sanicor corner lavatory is 17 in. by 17 in. overall

PRESSURE LUBRICANT

A dry lubricant, which consists essentially of molybdenum disulfide powder, and which has the appearance of graphite, though it contains none, is available from the Alpha Corporation, 1 Seneca place, Greenwich, Conn. Known as Molykote, it adheres tenaciously even to smooth surfaces with light rubbing. The material is reported to have a low friction coefficient and the capacity to prevent galling, seizing, or metal-to-metal contact at bearing pressures over 100,000 lb. per sq. in., and at either high or low sliding velocities.

Ten ounces of molykote will cover 500 sq. ft. of smooth metal surface, and it can be used as a factory-applied lifetime lubricant for mechanical articles. It is equally suitable for high, low and room temperatures. When used on screw fasteners or press fits, assembly takes place at a smoothly increasing torque or force without jerking. It may be mixed to a paste with S.A.E. No. 10 motor oil.

PLASTIC FINISH

A water-clear plastic finish that dries to a glossy, durable, long-wearing coating has been developed to protect exterior and interior finishes of railroad passenger rolling stock from wear and tear, weather, corrosion, dust and smoke. The exterior of a railroad car can be sprayed with the new plastic and the car put back in service again within 60 hours. It can be wiped on with a cloth to car interiors to protect window sills, varnished or finished surfaces, tables, walls, leather furniture and linoleum floors. The finish is touch dry in 20 min. and hard dry in eight hours.

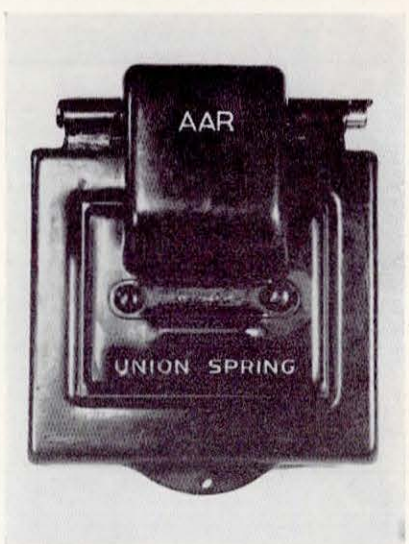
The plastic acts as a sealer. It is not a paint, varnish or lacquer. It is impervious to heat, cold, moisture, alkalis, fruit juices and most chemicals and is highly resistant to caustic soaps. It is a product of the Reyam Plastic Products Company, 1525 East 53rd street, Chicago 15.

JOURNAL-BOX LID

A journal-box lid for application to freight and passenger cars which is of pressed steel construction and contains a strong double heat-treated torsion spring equipped with a wide roller for easy action over the hinge lug has been announced by the Union Spring & Manufacturing Co., New Kensington, Pa.

The lid is applied and made operative by holding the lid over the hinge lug, inserting the lid pin, closing the lid until pressure is put on the roller and flipping out the retaining pin.

Two inserts of ⅜ in. round steel have been double-welded in the wells between the eye and lid to eliminate broken eyes. The lid has been approved by the Association of American Railroads in the following sizes: 5 in. x 9 in., 5½ in. x 10 in. and 6 in. x 11 in.



The Union Spring & Manufacturing Company's A.A.R.-approved journal-box lid

GENERAL NEWS

Gass Sees Chance To Send Cars Home

Asks cooperation on handling in accordance with Car Service Rules

Chairman Arthur H. Gass of the Car Service Division, Association of American Railroads, gave first place in his latest monthly review of the "National Transportation Situation" to a call for "relocation to owning lines of a large number of freight cars which became scattered during the prolonged period of heavy traffic and intensive car usage." The opportunity to do this has been provided, Mr. Gass said, by the "recent easing of the need for using almost every freight car for immediate reloading as soon as unloaded."

Thus he considered the time appropriate to urge railroads and shippers to cooperate in handling cars in accordance with Car Service Rules. He suggested that shipper cooperation should take the form of placing with serving roads, as far as practicable in advance of the loading date, detailed car orders showing types and sizes of cars desired, commodities to be shipped, date to be loaded, and routing and destination; and of making the "best selection from among cars available at loading docks for application on the loadings or billings available."

Hoppers and Gondolas in Better Supply

Coming to his discussion of equipment conditions by types of cars, Mr. Gass said the demand for hopper cars has recently been "considerably reduced as compared with previous years," principally due to decreased coal production and the fact that hopper-car supply has been substantially improved through addition to railroad ownership of 25,000 cars of this type during the past year. Coal loadings thus far in 1949 have been about 16.5 per cent below the average for the comparable 1948 and 1947 periods, Mr. Gass reported. The drop, he explained, was due to coal-market conditions, and also to the fact that tonnage normally diverted from river to rail movement during winter months has been handled by river this year because of the unusually mild weather east of the Mississippi river.

Thus far in 1949, as compared with 1948, bituminous coal production is off 14 per cent and anthracite production nearly 30 per cent, Mr. Gass said. He recalled that forecasts made "late last year" indicated that 1949 production would be only 5 per cent below 1948. Thus he expects "we shall soon have a general pick-up in demands for coal and consequently may hope for better loadings." At the same time, he noted that total stocks of bituminous coal and iron ore, as of January 1, "were considerably higher than at the same time last year." Coal exported in January to off-shore destinations totaled 1,436,990 tons compared with 2,541,175 in January, 1948; exports to Canada were 921,000 tons and 1,254,000 tons, respectively.

As to gondola cars, Mr. Gass reported "some tight spots" in the Chicago steel-loading area and in the Southwest; otherwise the supply recently has been "satisfactory." The C.S.D. chairman, however, went on to say that, while gondola loadings are now about 7 per cent below the comparable 1948 level, steel operations "continue at record levels and most of the lost tonnage results from the unprecedented winter weather conditions in the West adversely affecting the loading and movement of coal and building construction materials." When the weather becomes more moderate, "there will doubtless be a general tightening in the gondola situation," Mr. Gass predicted.

The supply of plain flat cars has been "generally adequate," and roads in other sections of the country have recently assisted Ohio Valley and midwestern lines in meeting heavy demands for such cars for loading of agricultural implements. Meanwhile, requirements for large-capacity flats, and for well and depressed-type cars, as Mr. Gass put it, "are unusually heavy and some difficulty is being experienced in protecting orders for cars of these types." There has recently been some surplus of covered hoppers, but the C.S.D. chairman expects this situation to vanish in the near future "when weather conditions improve and the heavy building program set up for 1949 gets under way."

"Better Grade" Box Cars in Demand

With respect to the box-car situation, he reported "little change" in recent weeks, except gradually increasing demands for "better grade" cars. "There is," he added, "a considerable surplus of merchandise or lower class box cars and cars of this grade which cannot be used for proper loading are being handled empty . . . to owners to repair and upgrade them thereby improving the quality of the general box car supply."

As to grain loadings, Mr. Gass said interested Department of Agriculture officials are endeavoring to formulate a plan whereby wheat stored under loan and purchase agreements can be cleared out of interior warehouses and moved into terminal storage in advance of April 30, which is the date loan and purchase contracts expire. "If this wheat can be transported while the box car supply is adequate it will relieve to that extent the strain which will be placed upon the supply as demands increase this spring," the C.S.D. chairman explained. The proposed plan was discussed at a February 18 meeting attended by interested government officials, Mr. Gass and R. E. Clark, manager of C.S.D.'s Closed Car Section. The meeting was arranged by Senator Reed, Republican of Kansas.

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"The ratio of the heavier type of commercial vehicle to all vehicles has increased. This in itself reduces the capacity of the roadway, in addition to the pounding involved. Many of the overloaded units are underpowered and underbraked, creating a most serious safety hazard at the same time that they clog the arteries they use.

"Weight laws should be enforced to the letter; and procedures should be invoked that would bring respect for the law — a respect now wholly lacking in many areas."

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GENERAL NEWS

Gass Sees Chance To Send Cars Home

Asks cooperation on handling in accordance with Car Service Rules

Chairman Arthur H. Gass of the Car Service Division, Association of American Railroads, gave first place in his latest monthly review of the "National Transportation Situation" to a call for "relocation to owning lines of a large number of freight cars which became scattered during the prolonged period of heavy traffic and intensive car usage." The opportunity to do this has been provided, Mr. Gass said, by the "recent easing of the need for using almost every freight car for immediate reloading as soon as unloaded."

Thus he considered the time appropriate to urge railroads and shippers to cooperate in handling cars in accordance with Car Service Rules. He suggested that shipper cooperation should take the form of placing with serving roads, as far as practicable in advance of the loading date, detailed car orders showing types and sizes of cars desired, commodities to be shipped, date to be loaded, and routing and destination; and of making the "best selection from among cars available at loading docks for application on the loadings or billings available."

Hoppers and Gondolas in Better Supply

Coming to his discussion of equipment conditions by types of cars, Mr. Gass said the demand for hopper cars has recently been "considerably reduced as compared with previous years," principally due to decreased coal production and the fact that hopper-car supply has been substantially improved through addition to railroad ownership of 25,000 cars of this type during the past year. Coal loadings thus far in 1949 have been about 16.5 per cent below the average for the comparable 1948 and 1947 periods, Mr. Gass reported. The drop, he explained, was due to coal-market conditions, and also to the fact that tonnage normally diverted from river to rail movement during winter months has been handled by river this year because of the unusually mild weather east of the Mississippi river.

Thus far in 1949, as compared with 1948, bituminous coal production is off 14 per cent and anthracite production nearly 30 per cent, Mr. Gass said. He recalled that forecasts made "late last year" indicated that 1949 production would be only 5 per cent below 1948. Thus he expects "we shall soon have a general pick-up in demands for coal and consequently may hope for better loadings." At the same time, he noted that total stocks of bituminous coal and iron ore, as of January 1, "were considerably higher than at the same time last year." Coal exported in January to off-shore destinations totaled 1,436,990 tons compared with 2,541,175 in January, 1948; exports to Canada were 921,000 tons and 1,254,000 tons, respectively.

As to gondola cars, Mr. Gass reported "some tight spots" in the Chicago steel-loading area and in the Southwest; otherwise the supply recently has been "satisfactory." The C.S.D. chairman, however, went on to say that, while gondola loadings are now about 7 per cent below the comparable 1948 level, steel operations "continue at record levels and most of the lost tonnage results from the unprecedented winter weather conditions in the West adversely affecting the loading and movement of coal and building construction materials." When the weather becomes more moderate, "there will doubtless be a general tightening in the gondola situation," Mr. Gass predicted.

The supply of plain flat cars has been "generally adequate," and roads in other sections of the country have recently assisted Ohio Valley and midwestern lines in meeting heavy demands for such cars for loading of agricultural implements. Meanwhile, requirements for large-capacity flats, and for well and depressed-type cars, as Mr. Gass put it, "are unusually heavy and some difficulty is being experienced in protecting orders for cars of these types." There has recently been some surplus of covered hoppers, but the C.S.D. chairman expects this situation to vanish in the near future "when weather conditions improve and the heavy building program set up for 1949 gets under way."

"Better Grade" Box Cars in Demand

With respect to the box-car situation, he reported "little change" in recent weeks, except gradually increasing demands for "better grade" cars. "There is," he added, "a considerable surplus of merchandise or lower class box cars and cars of this grade which cannot be used for proper loading are being handled empty . . . to owners to repair and upgrade them thereby improving the quality of the general box car supply."

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P. B. McGinnis Urges Railroads to "Fight"

Sees threat to equipment trusts in credit and traffic decline

The traditionally unassailable credit standing of railway equipment trust obligations is threatened, and soon may be in grave danger, unless the railroads get together in aggressive measures to correct the conditions responsible for this potential disaster. This alarming view was expressed in a hard-hitting address to the New York Railroad Club February 17 by Patrick B. McGinnis, chairman of the board of the Norfolk Southern and senior partner of the New York investment firm, McGinnis, Bampton & Sellger.

Since the first equipment obligation was sold in 1868 there has been only one small default on a total volume of around $5.5 billion of such securities issued, he pointed out. As a result, it has been possible to finance the purchase of new rolling stock at favorable interest rates at times when railroad credit in general was practically nonexistent, and carriers unable to find buyers for equities or even for bonds of senior grade have found a ready market for equipment certificates. Investors, Mr. McGinnis said, have come to consider these certificates "the best pieces of paper you can buy."

By the end of 1949, the speaker predicted, around $2 billion of equipment obligations will be outstanding. Maturities of these issues have to be met from depreciation accruals or out of earnings. Up to this time the railroads as a whole have been able to service their equipment securities from depreciation charges on equipment in operation, but Mr. McGinnis fears that the time is near when depreciation will be inadequate in amount to offset the annual installment payments on such securities. Already, he observed, nine of the twenty largest railroads (measured in gross revenues) are applying net income to the amortization of equipment trusts, as their equipment depreciation charges are insufficient for the purpose.

The railroads cannot allow this practice to go on, said the speaker. They cannot pay for $5,000 box cars with the depreciation on $2,000 box cars, and when cars are paid for out of net earnings the cost is $6,900, not $5,000, because income tax must be paid on net. When net is drawn on, less profit is available for dividends or property improvement, with a corresponding bad effect on general railroad credit. As they come to depend more and more on net earnings, the credit rating of equipment obligations too can be affected, Mr. McGinnis warned. Neither the railroads, the manufacturers of railway equipment, nor the Interstate Commerce Commission can afford to let the high standing of railway equipment obligations thus be jeopardized, he insisted.

Payments by the railroads for new equipment may forge ahead of depreciation charges on old equipment for two principal reasons. One is that the purchase agreements require the railroads to pay for the new equipment in ten or fifteen years, but the I.C.C. requires depreciation to be spread over, on the average, thirty-three years. The other is that the wartime accelerated depreciation provision resulted in removing over $1 billion of equipment from the depreciation base (even though the arrangement was to the railroads' advantage under excess-profits tax provisions), leaving the railroads no recourse except net earnings to meet amortization expense that under normal accounting could have been offset by the regular depreciation charges.

Effect of Per Diem

One of the results of the necessity, actual or potential, of meeting equipment trust payments out of net income, subject to income tax, Mr. McGinnis pointed out, is the willingness of a railroad to pay the standard per diem—which, as an operating expense, is nontaxable—rather than buy new cars. To put the situation in another way, the railroads that have gone along with the industry-and-government sponsored drive to build up the inventory of modern cars and locomotives and retire inefficient and obsolescent equipment may find themselves with credit further jeopardized, while carriers that have not cooperated by adequate purchases of new equipment will be in much less danger of having to draw on net earnings to meet maturities of equipment obligations.

What can be done to avert the weakening of the credit standing of railroad equipment securities that Mr. McGinnis fears? What can be done to make it more desirable for railroads that need new equipment to buy it promptly? The speaker had several suggestions.

The depreciation rate on most railroad equipment, as fixed by the I.C.C., is, in his opinion, "several per cent" too low. In these fast-moving times, he said, Diesel locomotives and freight cars should not be expected to run efficiently for thirty or forty years; they should be depreciated on a 10-year basis. "When Colonel Johnson tells the railroads to buy 100,000 freight cars," they should "present a united front," he de-

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Let's Restore the Railroads' Credit

The railroads are suffering from a stoppage of new capital, urgently needed to modernize their equipment and operation. . . . Unless new capital is allowed to circulate through the U. S. railroad system, it will almost certainly become necessary to amputate it from the private-enterprise economy and turn it over to government ownership. . . .

The real reason for low railroad earnings, and so for the collapse of railroad credit, is that the Interstate Commerce Commission has refused to let the roads earn a fair return on their investments. . . .

Nothing can be gained by criticizing the members of the commission. . . . But the history of the past quarter century proves that in a democracy even men of the highest character cannot protect railroad credit against political and social pressures for low rates.

The only remedy is for Congress to give the commission a mandate even more clear-cut and inescapable than the one it gave in 1920. The commission must be instructed to recognize as a reasonable rate level one that produces a fair return, and this return must be cumulative; in other words, a deficiency in any one year must be carried forward and made up in another. It must be made clear to potential investors that recurring credit crises are not a necessary preliminary to an increase in the rate level.

What chance of enactment would a "fair return" bill have? The obstacles are great. The forces that have kept rates low since 1906 are still politically powerful. And, perhaps surprisingly, I believe that strong opposition would have to be overcome within two other groups: (1) railroad management, and (2) institutional investors and their lawyers who have been active in railroad reorganizations.

Railroad management would have to make an embarrassing admission of past errors. . . .

The investor groups and their lawyers have committed themselves again and again to the propositions that adequate railroad earnings cannot be restored and maintained, that railroad credit can be restored only by scaling down debt and capital structures. I base my appeal to Congress on a denial of these fallacies. . . .

Temporarily, of course, shippers and passengers would pay more for railroad service under a "fair return" act. But over the years the net cost to the public of capital improvements on the railroads is less than nothing. The cost of a fair return on $10 billion at 6 per cent is $600 million a year. The savings resulting from $10 billion of new investment in the railroads should approximate at least $2 billion a year. This leaves at least $1.4 billion a year, which can be passed on to the public in the form of lower rates, higher wages, and increased tax payments. But the capital must be forthcoming first. If it were, if the credit of the railroads were restored and capital flowed to their needs, they could profitably spend at least $15 billion in the next few years for better and cheaper service to the public —which would be a great factor in stabilizing U. S. employment and production.

—Fairman R. Dick, in
March issue of Fortune.

cared, in demanding that the commission set a "decent" depreciation rate to justify the investment and provide adequate backing for the necessary securities.

Moreover, Mr. McGinnis asserted, the railroads should unite in showing the I.C.C. the "fallacy" of the present system of depreciation bookkeeping on an original cost basis. Depreciation accounting is the phase of the railroad business on which the least research has been done, he said; yet changes in practices can easily be made. The "old formula" can be replaced in "less than a year" by a "realistic basis for depreciation" if the railroads and the I.C.C. want it changed. The commission, he added, is guided largely by the record in cases before it, and the railroads, in his opinion, have been remiss in failing to come before it, all together, with a positive case for such a change.

Some of the speaker's premises and conclusions were challenged from the floor, particularly on the ground that a higher depreciation rate would adversely affect net earnings, especially in periods of declining traffic, further weakening railroad credit, reducing the industry's ability to pay dividends (its basis for attracting new venture capital for expansion) and depreciating its securities in the financial markets. Mr. McGinnis did not budge from his basic arguments, however, namely, (1) that with existing depreciation accounting many railroads soon will be doing what some are already doing, that is, using taxable net earnings (which otherwise could be used for dividends) to meet equipment certificate maturities, (2) that there is an added grave danger that the poor state of the industry's credit may extend to the heretofore highly regarded equipment issues, and (3) that the one way to avert these misfortunes is for the railroads to band together and fight for corective reforms in law and administrative practices.

Additional Objectives

The railroads should get together in aggressive measures not only to meet the equipment depreciation difficulty, said the Norfolk Southern chairman. There is need for some means of financing capital improvements to fixed property other than out of earnings or through mortgages. The former are inadequate and the latter are, except for the most fortunately situated railroads, almost unavailable. If the railroads insisted on a revision of I.C.C. depreciation regulations applying to fixed property to recognize cost of reproduction, it would be possible, for example, he suggested, to finance centralized traffic control on a 15-year amortization basis with certificates against which fixed property depreciation would be pledged.

The railroads need to fight on another front, he went on to say. They should act, and act now, to meet the loss of business to contract truckers that is resulting from the ability of the latter to make quantity rates to get profitable traffic. Railroads, too, should be able to make quantity rates, he insisted. The railroads are not going to stop this trend to the contract trucks by complaining about subsidized competition, he told his audience. They have been doing that for twenty years without success. They will not get anywhere, either, he added, by pleading their moral right to a six per cent return. The railroads must fight, he declared to hold their traffic, fight to preserve their revenues, fight to build up their credit.

FRISCO TRAFFIC MEN TOUR THEIR ROAD.—More than 100 representatives of the St. Louis-San Francisco's traffic department from all parts of the United States and Havana, Cuba, participated recently in a six-day staff meeting and tour of the south and southeast, inspecting facilities of the railroad and studying methods of handling export and import traffic. A highlight of the tour was inspection of docks at Mobile, Ala., in which the Frisco now has a special interest since its acquisition of the Alabama, Tennessee & Northern (see *Railway Age* of January 15, page 34)

C.P.R. Should Have 8.2 Per Cent Return, Economist Testifies

Dr. H. P. Dorau, professor of economics at New York University, testifying for the Canadian Pacific, told the Canadian Board of Transport Commissioners at Ottawa, Ont., last week that the company should have an 8.2 per cent return on its net railway investment base.

On an investment base calculated at just over $1 billion, Dr. Dorau said, the company's minimum prospective earning power should be more than $82 million per year, to restore its credit with investors so it can raise new capital to finance its requirements over the next few years. He described a fair return as the amount required for payment of "wages" on all types of capital, plus an amount for a reasonable surplus. In awarding a 21 per cent freight-rate increase in 1948, the transport commissioners acted on the basis that the C. P. R. required $52 million for fixed charges, dividends and surplus; that amount, Dr. Dorau said, "falls short of performing the functions of a fair return."

In concluding its case for a 20 per cent freight-rate increase, the C. P. R. pointed out that passage of time was boosting the percentage increase needed to overcome its estimated financial "deficiency" of $29 million for the year at current rates. By April 1, the company said, a 25 per cent increase will be necessary, because of the shorter period for which any increase would be effective. It did not, however, indicate that it contemplated requesting any more than the original 20 per cent.

The Canadian National opened its case for a similar increase with testimony from T. J. Gracey, assistant comptroller, to the effect that its net operating income in 1948 for the railway system alone was about $5 million, leaving an overall deficit for the year, after interest charges, of about $31 million. This, Mr. Gracey said, would be about double the 1947 deficit, and the largest since pre-war years. Results for 1949, he predicted, would be only slightly better on the basis of present rates; higher wage and material costs have virtually wiped out the effect of the 1948 rate increase.

States Can Tax Barges On Inland Waterways

States within which interstate carriers on inland waterways conduct operations may levy properly apportioned and non-discriminatory taxes on the barges or other property and activities of such carriers, the United States Supreme Court has ruled. The ruling came in a case involving Louisiana and New Orleans taxes contested by the Mississippi Valley Barge Line Company, American Barge Line Company, and Union Barge Line Corporation.

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the vessels of the barge lines and were based on the ratio between the total number of miles of the carriers' routes in Louisiana and the total number of miles of all their routes. The Supreme Court's decision, announced by Justice Douglas with Justice Jackson's dissent noted, reversed lower federal court rulings which had held that the taxes violated the due process clause of the Constitution's fourteenth amendment because the vessels had acquired no tax situs in Louisiana.

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"The ratio of the heavier type of commercial vehicle to all vehicles has increased. This in itself reduces the capacity of the roadway, in addition to the pounding involved. Many of the overloaded units are underpowered and underbraked, creating a most serious safety hazard at the same time that they clog the arteries they use.

"Weight laws should be enforced to the letter; and procedures should be invoked that would bring respect for the law — a respect now wholly lacking in many areas."

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categorically denied the charge of weight law violations by truckers — but Governor Henry F. Schricker, of Indiana, in his recent message to that state's legislature, referred to "the almost criminal disregard for the carrying capacity of most of our pavements"; and a law enforcement drive in Illinois, ordered by Governor Adlai E. Stevenson, revealed that out of 1,748 trucks weighed in a single day 424, or 24 per cent, were overweight. In Indiana, New Hampshire and other states, truck operators are seeking legislative approval of further increases in weight or size limits — or both. At the same time, many states, finding it impossible to maintain highways even for present vehicles out of present revenues, are considering proposals to increase gasoline taxes and vehicle license fees.

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Those planning to attend should make room reservations direct with the Purdue Memorial Union, West Lafayette, stating that they are attending the transportation short course. Copies of the reservation letters should be sent to Russell L. Cole, agricultural agent, Baltimore & Ohio, Indianapolis 10, Ind., who is chairman of the two groups' joint sub-committee.

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Careful consideration must be given to each movement for which the reduced rate may be proposed to determine whether it will be profitable, Mr. Makinson added. For special train service in particular the present cost is high, he said, and the Seaboard will not be "inclined to publish a rate of this kind involving extra train miles unless we feel sure there will be a minimum of 300 as a general rule. Between certain points, depending upon location of power and crews, we could not afford to operate for 300." The Richmond, Fredericksburg & Potomac will join the Seaboard in making this service available through to Washington, D. C. Arrangements similar to those announced by the Seaboard will be established by the Atlantic Coast Line, the Southern and the Florida East Coast.

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Railroad employment decreased 3.85 per cent — from 1,306,564 to 1,256,291 — from mid-December to mid-January, and the mid-January total was 4.66 per cent below that of January, 1948, according to the preliminary summary prepared by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The index number, based on the 1935-39 average, was 128 for January, as compared with 130.1 for December and 134.2 for January, 1948.

January employment was below that of the previous month in all groups, the decreases ranging from 0.55 in executives, officials, and staff assistants to 7.63 in the maintenance of way and structures group. As compared with January, 1948, employment in the executives, officials, and staff assistants group was up 1.59 per cent, but all other groups showed decreases, ranging from 2.41 per cent in the professional, clerical and general group to 7.26 per cent in the transportation (other than train, engine, and yard) group.

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The campaign was conceived by O. J. Wullstein, general freight claim agent, who said that, while posters directed to freight handlers and operating men are not new, "our current campaign is the first one of a localized nature and which attempts to build morale and strengthen employee relations as well as educate." He pointed out that much has been said to the railroad executives and management about freight handling, but much too little has been directed to the man on the freight dock, the employee in the yard, and the train crew member.

Charles J. Graham, president of the Pittsburgh & West Virginia (left), and John I. Snyder, Jr., chairman and president of the Pressed Steel Car Company, inspect the first car of a 600 60-ton hopper car order, placed by the railroad with Pressed Steel Car last August, to come off the production line at the car manufacturer's plant at McKees Rocks, Pa.

The 17-in. by 22-in. colored posters, of which some 36,000 have been printed, will appear on bulletin boards at freight houses, yard offices and many strategic points along the road's 10,000 miles of track. Sets are also being supplied to other interested railroads.

Pictured and quoted workers have been selected on a geographical basis so that all sections of the railroad are represented. This system, said Mr. Wullstein, will give employees on every part of the railroad a feeling of importance and of being an integral part of the whole operation of moving freight. "These posters," he added, "are designed to drive home the idea that moving freight safely is a personal problem—a matter of job permanence, keeping and building business, advancement and, of course, the pay-check."

Division of Profits Suggested In Place of Wage Increase

Because it finds that the company is "financially unable" to meet requests of employees for wage increases, a Canadian conciliation board has recommended that the Temiscouata enter into an agreement with its employees to divide among them 60 per cent of any net operating revenue for 1949. "It would not serve any purpose," the

000); constructing a 250,000-gal. Diesel fuel oil tank at Danville, Va. ($20,300); constructing a 100,000-gal. Diesel fuel oil tank and pumping facilities at Selma, Ala. ($26,500); constructing a new spur track for the Burlington Mills and extending the southbound passing track at Hurt, Va., ($25,870), and constructing tracks to serve the Cranston Print Works Company at Fletcher, N. C. ($24,000).

FINANCIAL

Investment House Publications

[The surveys listed herein are, for the most part, prepared by financial houses for the information of their customers. Knowing that many such surveys contain valuable information, *Railway Age* lists them as a service to its readers but assumes no responsibility for facts or opinions they may contain bearing upon the attractiveness of specific securities.]

Baker, Weeks & Harden, One Wall st., New York 5, N. Y.

Chicago & Eastern Illinois (Feb. 1).

Great Northern. Information obtained on recent field trip (Jan. 28).

Northern Pacific. Information obtained on recent field trip. (Jan. 28).

Southern Railway (Feb. 7).

Distributors Group, Inc., Investment Research Department, 63 Wall st., New York 5, N. Y.

[Outlook for] *Railroad Equipment Shares* (Jan. 19).

Dreyfus & Co., 50 Broadway, New York 4, N. Y.

New Wisconsin Central Plan Expected (Jan. 31, No. 175).

Fahnestock & Co., 65 Broadway, New York 6, N. Y.

Outlook for the Railroad Industry (Jan. 31).

R. W. Pressprich & Co., 68 William st., New York 5, N. Y.

The Relative Position of the Market for Railroad Equipment Trust Certificates (Jan. 25).

Smith, Barney & Co., 14 Wall st., New York 5, N. Y.

Northern Pacific Railway Company and *Chicago, Burlington & Quincy Company.* Railroad Bulletin No. 22 (Jan. 26).

Chicago & North Western Railway Company. Railroad Bulletin No. 23 (Feb. 10).

Erie Railroad Company. Railroad Bulletin No. 24 (Feb. 9).

Canadian Pacific.—*New Director.*—N. R. Crump, operating vice-president of this road, has been elected a member of the board of directors to succeed the late George W. Spinney.

Pennsylvania-Wabash.—*Control of D.T. &I.*—The Interstate Commerce Commission has set March 22 as the date for hearing on the application of these roads for authority to acquire control of the Detroit, Toledo & Ironton from the Pennroad Corporation (see *Railway Age* of January 29, page 46). The hearing will be held at Washington, D. C., before Examiners Albus and Eddy.

Union Pacific-Chicago Great Western.—*Joint Use.*—Division 4 of the Interstate Commerce Commission has authorized joint use by these roads on a reciprocal basis of four short segments of track in Leavenworth, Kan. The segments, totaling 1,307 ft., constitute a continuous line, 1,024 ft. of which is owned by the C. G. W. and 343 ft. by the U. P.

New Securities

Applications have been filed with the Interstate Commerce Commission by:

Chesapeake and Ohio.—To assume liability for $5,150,000 of equipment trust certificates, proceeds of which will be applied toward purchase from the American Car & Foundry Co. of 725 70-ton steel hopper cars at $4,350 each and 150 30-ton steel cabooses at $8,760 each; and 10 steam freight locomotives of the 2-6-6-2 type from the Baldwin Locomotive Works at $204,009 each. The certificates would be sold on the basis of competitive bids, and the interest rate would be fixed by such bids. They would be dated March 15 and mature in 10 annual installments of $515,000 each, beginning March 15, 1950.

Chicago, Rock Island & Pacific.—To assume liability for $2,808,000 of series C equipment trust certificates, proceeds of which will be applied toward purchase of 20 Diesel-electric locomotives and 100 covered hopper cars expected to cost a total of $3,757,222, as follows:

	Description and builder	Estimated Unit Cost
10	1,000-hp. Diesel-electric road switching locomotives (Electro-Motive Division, General Motors Corporation)	$102,500
5	1,500-hp. Diesel-electric branch-line locomotives (Electro-Motive)	153,951
3	3,000-hp. Diesel-electric passenger locomotives, each consisting of one 1,500-hp. "A" unit and one 1,500-hp. "B" unit (Electro-Motive)	337,265
2	1,500-hp. Diesel-electric suburban locomotives (Fairbanks, Morse & Co.)	145,336
100	70-ton covered hopper cars (Pullman Standard Car Manufacturing Company)	6,600

The certificates would be sold on the basis of competitive bidding, and the interest rate would be fixed by such bids. They would be dated April 1, and mature in 24 semi-annual installments of $117,000 each, beginning October 1, 1949.

New York Central.—To assume liability for $12,300,000 of equipment trust certificates to finance in part the acquisition of the following equipment:

	Description and builder	Estimated Unit Cost
25	600-hp. Diesel-electric switching locomotives (Electro-Motive Division, General Motors Corporation)	$ 82,550
11	1500-hp. "A" unit Diesel-electric road freight locomotives (Electro-Motive)	178,960
2	1500-hp. "B" unit Diesel-electric road freight locomotives (Electro-Motive)	160,075
31	Stainless steel single bedroom sleeping cars (The Budd Company)	142,575
4	Stainless steel double bedroom-lounge-observation-sleeping cars (Budd)	144,850
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100	70-ton covered steel hopper cars (Pullman-Standard Car Manufacturing Company)	7,200
500	55-ton self-clearing steel hopper cars (Pressed Steel Car Company)	4,650
500	70-ton high-side steel gondola cars (Pullman-Standard)	6,300

Total estimated cost of all equipment is $15,996,085. The certificates would be dated March 15, and would mature in 15 annual installments of $820,000 each, beginning March 1, 1950. They would be sold on the basis of competitive bids and the interest rate would be fixed by such bids.

Southern Railway.—To assume liability for $11,850,000 of series QQ equipment trust certificates to finance in part the acquisition of 95 Diesel-electric locomotives, estimated to cost approximately $15,800,000. The Electro-Motive Division of General Motors Corporation will build 70 of these locomotives, 6 of which will be 2,000-hp. passenger locomotives and 64 will be 1,500-hp. road freight locomotives (39 lead units and 25 booster units). The remaining 25 will be 1,500-hp. road switchers built by the American Locomotive Company. Unit prices were not listed in the application because specifications have not been completed. The certificates would be dated April 1, and would mature in 30 semi-annual installments of $395,000 each, beginning October 1, 1949. They would be sold on the basis of competitive bids and the interest rate would be fixed by such bids.

Division 4 of the I.C.C. has **authorized:**

Atlantic Coast Line.—To assume liability for $10,675,000 of series J equipment trust certificates, the first installment of a proposed $19,350,000, issue, the whole of which will finance in part acquisition of 2,945 freight cars, 18 Diesel-electric locomotives, and 44 passenger-train cars at a total estimated cost of about $21,500,000 (see *Railway Age* of February 5, page 118). The certificates will be dated March 1, and mature in 15 annual installments of $711,000 each, beginning March 1, 1950. The commission's report approved a selling price of 99.37 with a 2½ per cent interest rate—the bid of Halsey, Stuart & Co., and 20 associates, which will make the average annual interest cost approximately 2.61 per cent. The certificates were reoffered to the public at prices yielding from 1.45 to 2.8 per cent, according to maturity.

Texas & Pacific.—To assume liability for $2,250,000 of equipment trust certificates to finance in part the acquisition of five Diesel-electric locomotives at an estimated cost of $3,094,368 (see *Railway Age* of January 29, page 47). The certicates will be dated March 1, and will mature in 10 annual installments of $225,000 each, beginning March 1, 1950. The commission's report approved a selling price of 99.43 for the issue with a 2 per cent interest rate—the bid of R. W. Pressprich & Co. and 4 associates, which will make the average annual interest cost approximately 2.13 per cent. The certificates were reoffered to the public at prices yielding from 1.3 to 2.3 per cent, according to maturity.

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The Temiscouata operates from Riviere du Loup, Que., where it connects with the Canadian National, to Connors, N. B., 113 miles, via Edmundston, where it connects with the Canadian National and Canadian Pacific. In 1946 it had a net railway operating income of $5,454; in 1947, a loss of $2,787.

Freight Carloadings

Carloading figures for the week ended February 19 were not available when this issue went to press.

Loadings of revenue freight for the week ended February 12 totaled 699,442 cars, and the summary for that week as compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Carloadings
For the week ended Saturday, February 12

District	1949	1948	1947
Eastern	133,118	135,798	146,206
Allegheny	150,492	152,367	165,836
Pocahontas	59,816	64,048	68,706
Southern	121,829	123,522	137,208
Northwestern	72,523	80,716	86,696
Central Western	103,569	118,664	129,835
Southwestern	58,095	58,755	65,490
Total Western Districts	234,187	258,135	282,021
Total All Roads	699,442	733,870	799,977
Commodities:			
Grain and grain products	39,673	36,734	51,624
Livestock	7,814	7,656	13,320
Coal	158,378	171,826	178,935
Coke	15,864	14,850	14,509
Forest products	31,536	35,388	49,797
Ore	12,559	10,901	12,233
Merchandise l.c.l.	94,593	106,492	118,833
Miscellaneous	339,025	350,023	360,726
February 12	699,442	733,870	799,977
February 5	682,143	746,936	767,301
January 29	679,255	726,345	835,051
January 22	709,585	771,139	821,928
January 15	733,272	808,308	828,060
Cumulative total 6 weeks	4,225,204	4,617,408	4,883,270

In Canada.—Carloadings for the week ended February 12 totaled 71,943 cars, as compared with 72,289 cars for the previous week, and 69,591 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
February 12, 1949	71,943	33,394
February 14, 1948	69,591	35,979
Cumulative totals for Canada:		
February 12, 1949	430,354	193,771
February 14, 1948	435,933	207,229

Would End Hidden Transport Aid; Establish Federal Traffic Bureau

Subsidies granted to air lines and ocean carriers in the form of excess mail pay should be financed by "open appropriations" to the Post Office Department "from tax funds" and not imposed upon that department or mail users in the present "hidden manner," the Commission on Organization of the Executive Branch of the Government has recommended. The commission, known as the "Hoover Commission" because it is headed by former President Herbert Hoover, made this recommendation to Congress in a report on the Post Office.

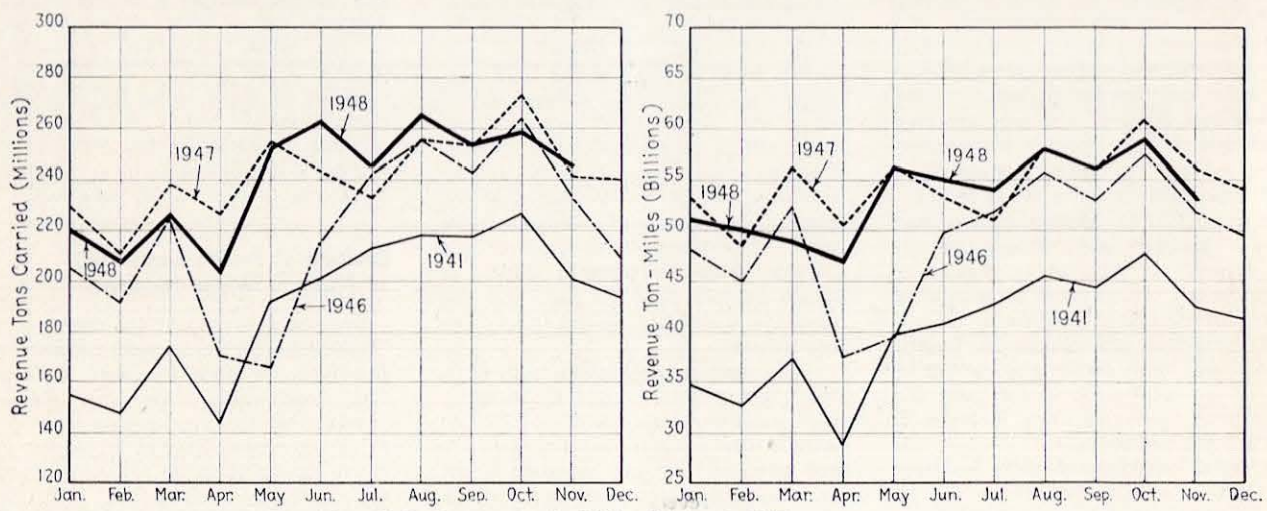
In another recent report on the federal supply system, the commission recommended centralized handling by a traffic management unit of freight transportation matters for all agencies and departments of the government. The traffic management unit would be part of a new federal supply agency which, in turn, would be part of a "general services" administration.

In making its recommendation that transport subsidies be brought into the open, the report on the Post Office did not condemn those subsidies; on the contrary, it suggested that they "may be most desirable." An accompanying report by a commission "task force," which made the basic studies of the Post Office, mentioned the payments for transportation of air mail as a "clear example" of the subsidies it had in mind.

The report of the "task force" also said there was "real need" for research by the Post Office Department to determine "the most advantageous balance between the various means of moving the mails." The report added: "There is reason to believe that broad economic studies might show, for instance, that certain volumes of mail moving regularly in certain directions between certain points of the country could be transported at lower cost by air than by rail if all factors were considered, including payment for return of empty cars required under present railway mail pay rates. Similar studies of truck transportation might also reveal economies which might be achieved without impairing service."

The traffic management unit proposed in the report on the federal supply system was visualized by the commission as an agency which would: (1) Advise all government agencies on traffic management problems; (2) represent all agencies in negotiating rates with carriers; (3) represent all agencies in cases before transportation regulatory bodies; (4) advise agencies as to reasonableness of carriers' bills; (5) prepare and maintain appropriate manuals and guides relating to traffic management activities of government agencies.

"Annual charges paid by the government for transportation of property," the commission said, "exceed $1 billion, which is nearly one-tenth of the revenue of common carriers for transportation of property. Government property and its channels of movement differ materially from commercial traffic for which carrier tariffs have been constructed. Most traffic personnel in the federal government are auditing transportation bills. Only a very few employees are engaged in activities aimed at improving traffic management and reducing costs. Agencies having well-developed traffic



Revenue Tons and Revenue Ton-Miles—1948 Compared with 1941, 1946 and 1947

organizations have demonstrated that substantial savings can be achieved if attention is devoted to this problem. The Reconstruction Finance Corporation, for example, effected savings of $17 million on its wartime traffic with an average annual salary expenditure of $200,000."

T. & P. Queries Employees for Both "Brickbats and Bouquets"

The Texas & Pacific is giving its 10,000 employees an opportunity to submit their personal opinions on how the railroad is being run and how it ought to be run. The opinions will be supplied by answers to 59 questions contained in a 20-page booklet distributed throughout the system. The questionnaires are not to be signed.

Specific inquiries are made on the subjects of company, job, wages, hours, fellow employees, profits, caliber of management, employee information and company publications. The road expects to collect a jackpot of answers to the final question, which reads: "If you were president, what changes would you make on the T. & P. that would improve its services and make it a better railroad?"

The question-and-answer booklet is entitled "Here's What I Think," and has been handed out with pay checks. Self-addressed envelopes will route the completed booklets to Dr. Arthur Smith, head of Southern Methodist University's economic department. The answers will be tabulated, analyzed and summarized, and the results published in booklet form for mailing to employees.

J. B. Shores, director of public and employee relations, said of the project: "We asked the questions frankly and are having them tabulated by an impartial agency. I have no doubt but that we will get the same kind of answers. That's what we want—the brickbats and bouquets with the employee knowing his answers will neither help nor hurt him personally."

Addressed to Railroad Suppliers

"There is increasing effort to maneuver the railroads into government ownership. Starve them is a good way to do it. Politically that would be a strategic move. Some 1,300,000 railroad workers would be on the government payroll, and that would help the professional politician to keep in office. Politics has become a profession, rather than a civic duty. It now is a goal for a life's work; therefore, if a means can be devised to assure a large voting block, the election result is simplified. Did not the results of the recent national election demonstrate the power of the government payroll and of subsidy?

"Keeping the railroads under private ownership is important to you. No single group can be called closer friends of the railroads than the railroad supply people. We need your continued help to sell the idea of privately owned railroads. If the railroads fall into a plan of national socialism, then other basic industries will soon follow in their wake—steel, cement, telephones, to name some starters. Government will become our master rather than our servant. The railroads are now under severe testing of the free and private enterprise system."

—From informal talk before railroad supply representatives in Chicago by G. Murray Campbell, vice-president and executive representative, Baltimore & Ohio.

Gurley Opens Carrier Testimony At Diesel Engineer Hearings

The Diesel locomotive, Fred G. Gurley, president of the Atchison, Topeka & Santa Fe, told the emergency board at Chicago on February 22, instead of constituting a threat to railroad workers, has actually created jobs for enginemen and firemen because it has been one of the principal factors enabling railroads to regain passenger business and hold freight traffic.

Mr. Gurley was the first witness to appear in behalf of the carriers before the fact-finding board that is hearing the request of the Brotherhood of Locomotive Engineers for an additional engineman on Diesel locomotives. The engineers began their presentation on February 9, and concluded their testimony on February 22. The board—which was to have completed its investigation by February 27—has been granted a 45-day extension in which to hear the case and report to the President. Its three members were appointed on February 15 to an additional emergency board to hear the case of the Brotherhood of Locomotive Firemen & Enginemen for a second fireman on Diesels.

Mr. Gurley told the board that the engineers' demand originated "with ambitious union officials who are skilled in conjuring up cases stemming from technicalities," and that he believed rivalry between the engineers' and firemen's organizations had compelled the firemen to press similar demands. The Santa Fe—the world's largest user of Diesels—has never had an accident when there was only one man in the cab, Mr. Gurley reported.

January Revenues 2.7 Per Cent Below Those of January, 1948

From preliminary reports of 82 class I railroads representing 81.4 per cent of total operating revenues, the Association of American Railroads has estimated that the January gross amounted to $594,256,495, a decrease of 2.7 per cent below the $610,827,290 reported for the same 1948 month. Estimated January freight revenues were $482,402,542, as compared with January, 1948's $497,519,809, a decrease of 3 per cent. Estimated passenger revenues totaled $65,920,214, as compared with $66,607,398, a decrease of 1 per cent. The estimate for all other revenues was $45,933,739, as compared with $46,700,083, a decrease of 1.6 per cent.

C. P. R. to Appeal Tax Ruling Of Provincial Court

A spokesman for the Canadian Pacific has stated that that company will appeal from a decision of the Saskatchewan court of appeal which gave municipalities of that province the right to collect taxes on 416 miles of C.P.R. main line and 1,603 miles of branch line. The company contends that five statutes amended by the province in 1947 to permit collection of such taxes are illegal, in that they conflict with provisions of the company's 1881 contract which exempt it from certain types of taxation in return for its achievement in linking eastern and western Canada by rail.

U. P. Lines Cleared After Seven Weeks of Paralyzing Weather

The longest interruption to through service in the history of the Union Pacific—brought about by unprecedented weather conditions along its lines in western Nebraska, Wyoming, Utah and Idaho—ended on February 23 with the reopening to passenger traffic of the road's main line through Wyoming. Freight traffic began to move through the latter state late last week, and on February 23 the U. P. announced that freight movements were back on schedule.

Until dislocated equipment and power is fully restored to proper terminals, the streamliners, "City of Los Angeles," "City of San Francisco," and "City of Portland," will operate on tri-weekly schedules from Pacific Coast terminals and Chicago. All other passenger trains, the U. P. said, are operating on regular schedules.

In a statement to *Railway Age*, the U. P. said: "For seven consecutive weeks since January 2, through service was interrupted time and again by repeated blizzards, heavy snows, winds ranging up to 80 m.p.h. and temperatures ranging down to 51 deg. below zero. The best efforts of men and machinery were of no avail against the constantly moving snow, which in many places drifted 30 ft. high. Employees and officers worked untiringly, but the work of days was often wiped out in hours as new gales returned to blow the snow back from where it had just been removed at great effort.

"During much of the time the only traffic handled was emergency supplies of foodstuffs, fuel, livestock feed and snow-fighting equipment for the beleagured communities in the storm-bound area. Because of the severity of the storms only a few cars could be

handled at one time and only then with the aid of one of the large rotary plows ahead of the engine. In many instances local food shortages were further relieved by opening cars in freight trains on track and making the supplies available to the public."

Employed in the day-and-night task of fighting the storms were 15 large railroad rotary plows, 33 wedge and spreader plows, 124 flame throwers, 180 bulldozers, carry-alls and other equipment. Some 14,000 U. P. employees devoted full time to snow fighting, manning both railroad owned and leased equipment. No expense was spared to restore even the limited service so sorely needed by the affected area, said the U. P. management.

Limiting Maximums Fix Total Increases in Combination Rates

When Interstate Commerce Commission decisions in rate-advance cases provide that the application of general percentage increases to some commodities shall be limited by cents-per-100 lb. or cents-per-ton maximums, such maximum amounts cannot be added to each factor of combination rates but must be considered as limitations on total increases in the combination rates. The commission has so ruled in a report which rejected a proposed amendment to a railroad tariff rule which would have had the effect of applying the maximums to each factor of a combination rate.

While the revised rule would have applied to the Ex Parte 162 increases, the commission said it was "generally recognized that its determination of the issue would apply also to Ex Parte 166 and the pending Ex Parte 168 case. The rule is Rule 7 of Supplement 15 to Agent B. T. Jones' tariff I.C.C. No. 4109. It now provides that the authorized Ex Parte 162 increases shall apply to each factor of combination rates, except that the total of such separate-factor increases shall not exceed the maximum increase, if any, specified for the commodity involved.

The proposed revision would have eliminated that exception. It was published in a tariff originally scheduled to become effective January 31, 1948, but suspended by the commission when it instituted the proceeding (I. & S. Docket No. 5553) out of which the present report has come. The commission ordered the suspended schedules canceled and the proceeding discontinued. In doing so, it recalled that the railroad proposals in Ex Parte 162 were "a combination of percentage, specific and maximum increases designed to preserve their traffic and to retain as far as practicable existing competitive commercial relations." It added that its Ex Parte 162 finding as to how the authorized increases were to be applied to combination rates was "designed with a like purpose."

"The proposed rule," the commission continued, "would largely nullify that purpose by disrupting existing competitive relations as between one-factor and combination rates on a wide variety of commodities in practically all sections of the country, on which there is substantial movement. . . . This record shows that the effect of such disruption of important adjustments on a number of commodities would be to stifle their movement by seriously handicapping shippers in meeting competition from shippers doing business at one-factor rates, many of which are now at lower levels than the combination rates here sought to be increased."

The commission then went on to suggest that the "just and practicable way" to incorporate the authorized increases in combination rates into the permanent rate structures was to publish the combination rates as one-factor rates. The report also included a suggestion with respect to the railroad contention that the present rule has prevented increases in combination rates which are on bases below those prescribed by the commission as maximum reasonable, the lower levels having resulted chiefly because one or more of the factors were reduced to meet truck competition. "It may be," the commission said, "that some rates which have been depressed by truck or other competition can and should be increased as contemplaced under the proposed rule without transgressing the law, but a general rule such as the one under consideration is an unjust and impracticable method of accomplishing that end."

ORGANIZATIONS

Horace B. Northcott, general advertising manager of the Union Pacific at Omaha, Neb., was elected president of the **Association of Railroad Advertising Managers** at the organization's recent annual meeting in Chicago. Other officers elected were: First vice-president, Walter S. Jackson, advertising manager, Chesapeake & Ohio, Cleveland, Ohio; vice-presidents, A. W. Eckstein, advertising agent, Illinois Central, Chicago, and F. Q. Tredway, general advertising agent, Southern Pacific, San Francisco, Cal.; treasurer, C. C. Dilley, advertising agent, Chicago, Milwaukee, St. Paul & Pacific, Chicago; secretary, S. E. McKay, advertising agent, Baltimore & Ohio, Chicago, and assistant secretary, C. D. Perrin, Poole Brothers, Chicago.

The **Railroad General Agents Association of San Francisco,** at its recent annual meeting, elected the following officers for 1949: President, E. J. Piatt, Atchison, Topeka & Santa Fe; first vice-president, G. L. Wiegner, Chicago, Rock Island & Pacific; second vice-president, H. R. McCorkel, Baltimore & Ohio; third vice-president, G. C. Seaman, Delaware & Hudson, and secretary-treasurer, A. J. Charlton, Toledo, Peoria & Western.

The third annual national meeting of the **Forest Products Research Society** is to be held at the Civic Auditorium in Grand Rapids, Mich., May 2-4, inclusive. The sessions will be the only national gathering of the society this year and are open to nonmembers as well as members. An attendance of some 500 persons is expected. Technical discussions will be on the subjects of raw material and its preparation, furniture and plywood, chemical utilization of wood, machining of wood, development of research, and seasoning. In addition, papers covering a variety of individual subjects will be read.

The **Indianapolis Car Inspection Association** will hold its next regular business meeting on March 7, at 7 p.m., in the assembly room of the Big Four building, Indianapolis, Ind.

The annual meeting of the **New England Railroad Club** will be held on March 8, at 7:45 p.m., at the Hotel Vendome, Boston, Mass. A sound film, "How To Improve Your Golf," will be shown through courtesy of Goodall Fabrics.

The **Central Railway Club of Buffalo** will hold its next meeting on March 10, at 8 p.m., in the Niagara room of the Hotel Statler, Buffalo, N. Y. Robert Aldag, manager of sales engineering, Fairbanks, Morse & Co., Chicago, will address the club on "Locomotive Models and Data," and E. C. Jackson, manager, education department, Fairbanks, Morse, will speak on "Opposed Piston Engines."

"Handling Explosives and Other Dangerous Commodities in Rail Transportation" will be the subject of an address by Charles Hoch, inspector of safety, Reading, at the next meeting of the **Eastern Car Foremen's Association** on March 11, at 8 p.m., in the Engineering Societies building, New York.

The **Car Foremen's Association of Chicago** will hold its next meeting on March 14, at 8 p.m., at the LaSalle Hotel, Chicago. O. J. Horger, chief engineer, railway division, Timken Roller Bearing Company, Canton, Ohio, will speak on "Roller Bearings in Freight Cars."

George Christopher, president of the Packard Motor Car Company, will be the guest speaker at the general luncheon featuring the 26th annual meeting of the **Great Lakes Regional Advisory Board** at the Hotel Statler, Detroit, Mich., on March 15 and 16.

The **Pacific Transportation Advisory Board** will hold its 78th regular meeting on March 16 and 17, at the Hotel Leamington, Oakland, Cal. The speaker at

the luncheon session will be Weldon B. Gibson, chairman, business and industrial economics, Stanford Research Institute, Stanford, Cal., who will talk on "Possibilities for Research in Railroad Transportation." Officers for the coming year will be elected.

The **Traffic Club of New York** held its 39th annual banquet on February 18. William Munford Tuck, governor of Virginia, was the principal speaker; his subject was "Our Sinews of Democracy."

The **Traffic Club of Philadelphia** will hold its regular monthly dinner meeting on March 14 instead of March 7.

CAR SERVICE

Canadian Heavy-Loading Restrictions to Be Removed

The Canadian Board of Transport Commissioners has announced removal of war-imposed maximum loading restrictions on freight cars, effective April 1.

The restrictions have been protested by a number of trade associations and shippers. In its releasing order, the board said the acute freight-car shortage that compelled the restrictions "no longer exists."

Canada's freight-car supply last month showed a favorable balance as against the United States for the first time in years.

EQUIPMENT AND SUPPLIES

Equipment on Order

Class I railroads and railroad-owned and controlled refrigerator car lines had 86,670 new freight cars on order February 1, compared with 107,364 on order February 1, 1948, according to the Association of American Railroads. This year's February 1 total of cars on order by all railroads and private car lines was 96,464.

The 86,670 cars involved in the February 1 orders of railroads and their affiliated refrigerator car lines included 35,413 cars to be built in railroad shops and 51,257 to be be built by contract builders. The breakdown by types of cars was as follows: Box cars, 14,865, including 14,715 plain and ventilated and 150 auto-box; hoppers, 41,534, including 4,025 covered hoppers; gondolas, 19,003; flat, 3,888; refrigerator, 5,487; stock, 755; miscellaneous, 1,138.

Class I roads on February 1 also had 1,563 locomotives on order, the "greatest number for any corresponding date in the records of the association," the A.A.R. statement said. The total included 1,490 Diesel electrics and 73 steam locomotives. On February 1, 1948, there were on order 1,513 locomotives, including 1,414 Diesel-electrics, 96 steam, and 3 electrics.

The class I roads and their affiliated refrigerator car lines placed 7,533 new freight cars in service in January, as compared with 8,240 installed in January, 1948. The former total included 1,708 box cars, 3,060 hoppers, 2,170 gondolas, 329 refrigerator cars, 128 flat cars, and 138 miscellaneous cars. January retirements totaled 5,770 cars, compared with 4,364 in January, 1948.

Locomotives installed by class I roads in January totaled 136 of which 129 were Diesel-electrics and 7 steam. The January, 1948, installations totaled 77, including 75 Diesel-electrics, 1 steam, and 1 electric.

FREIGHT CARS

The **Denver & Rio Grande Western** has ordered 50 50-ton gondola cars from the Bethlehem Steel Company.

The **Western Fruit Express Company** has transferred to the Pacific Car & Foundry Co. from its own shops an order for 250 40-ton refrigerator cars.

SIGNALING

The **Minneapolis, St. Paul & Sault Ste. Marie** has ordered equipment from the General Railway Signal Company for installation of an automatic interlocking at Jenswold street, Duluth, Minn., for control of a crossing with the Northern Pacific. Model 7 switch circuit controllers, Model 2A smashboard signals, and Type K relays will be used.

The **Western Pacific** has placed an order with the Union Switch & Signal Co. for materials for installation of centralized traffic control between Portola, Cal., and Gerlach, Nev., 117 mi. The control point, which requires a 10-ft. Style C machine, will be at Elko, Nev., 225 mi. east of Gerlach, the first field location. The order involves H-2 searchlight high and dwarf signals; Style M-22A dual-control electric switch layouts; Style T-21 switch and lock mechanisms equipped with SL-25 electric locks for the main line hand-operated switches; complete coded carrier office and field apparatus with duplex telephone carrier equipment for code line communication, coded track circuit apparatus, necessary relays, transformers, rectifiers and housings. This installation will provide C. T. C. signaling on the main line between Stockton, Cal., and Gerlach, 344 mi. Field work will be handled by railroad forces.

SUPPLY TRADE

The **Dearborn Chemical Company**, Chicago, has announced the appointment of **Earl M. Converse**, vice-president, to the post of senior vice-president, and the election of **Eugene P. Fager**, assistant vice-president and technical director, as vice-president and industrial department manager. Mr. Converse, who has been

Earl M. Converse

associated with Dearborn for 46 years, attended Armour Institute and Northwestern University. He served first in the firm's laboratory and moved to the sales department in 1906. He became director of the specialty department in 1917, a director of the company in 1929, and vice-president in 1934. In 1947 the American Society of Metals awarded

Eugene P. Fager

Mr. Converse the silver certificate for 25 years of meritorious service and contributions to the society.

Mr. Fager is a graduate of the University of Illinois and joined Dearborn's laboratory staff in 1920. He advanced to chief chemist in 1924 and, in 1928, was appointed sales department chemical engineer. Mr. Fager was elected a director in 1934 and assistant vice-president and technical director in 1941.

Albert F. Metz, whose election as president and general manager of the **Okonite Company** was announced in the *Railway Age* of February 19, page 57, joined the company in 1919 as accountant. Formerly, he worked as assistant to the controller of the Famous Players Lasky Corporation and, during

Albert F. Metz

World War I, was disbursing officer and auditor for the United States Shipping Board. During his 30 years with Okonite he also served as controller, and before his recent election was vice-president and treasurer. **Donald R. Stevens,** whose election as executive vice-president and member of the executive committee also was announced in the *Rail-*

Donald R. Stevens

way Age of February 19, joined the organization in 1921 as superintendent. He later was vice-president and works manager in charge of the firm's three plants, the Okonite Company, Passaic, N. J., the Hazard Insulated Wire Works division, Wilkes-Barre, Pa., and the Okonite-Callender Cable Company, Paterson, N. J. Mr. Stevens is also a director of the company.

Fairbanks, Morse & Co. has announced the appointment of **Louis R. Gaiennie** as director of personnel at the company's Beloit, Wis., plant. He formerly served as a staff consultant for Stevenson, Jordan & Harrison, Inc., management engineers, at Chicago, and more recently as assistant to the vice-president of the Richardson Company.

Eugene G. Sheasby, manager of the market development division, **United States Steel Supply Company** (subsidiary of **United States Steel Corporation**), at Chicago, has been appointed general staff manager, general sales division.

Sherman Miller, vice-president in charge of production engineering of the **American Locomotive Company** at Schenectady, N. Y., has been appointed consultant to the locomotive division. **R. J. Finch,** chief mechanical engineer, has assumed direct supervision of the engineering department and will report to the manager of the locomotive division.

Mr. Miller began his career in 1895 in the erecting shop of the Brooks Lo-

Sherman Miller

comotive Works, a predecessor of American Locomotive, at Dunkirk, N. Y. Four years later he was transferred to the Brooks drawing room. He studied mechanical engineering at Purdue University (class of 1905) and in 1907 was transferred from the drawing room at Dunkirk to Schenectady. In 1916 he was appointed superintendent of the general drawing room and, in 1941, chief mechanical engineer. In 1946 he was elected vice-president.

Harry H. Rose has been appointed general manager of the **Simmons Fastener Corporation,** Albany, N. Y. During the last two years, Mr. Rose was general sales manager and, for the preceding three years, a sales engineer. Before his association with Simmons Fastener, he was an engineer for the parent company, the Simmons Machine Tool Corporation.

The **Graybar Electric Company** has announced the appointments of **J. R. Ernest** as district operating manager at Kansas City, Mo., and **W. R. Windfield,** as district operating manager at Seattle, Wash. Mr. Ernest was formerly district operating manager at Seattle and Mr. Windfield was assistant to the district operating manager at Chicago.

T. W. Masterman and **W. W. Wagner,** whose appointments as, respectively, western district manager and district engineer of the **Westinghouse Air Brake Company,** at Chicago, were reported in the *Railway Age* of January 14, both

T. W. Masterman

joined the company as special apprentices on the company's engineering training program. Mr. Masterman started service with Westinghouse Air Brake in 1920, advancing later to train control field engineer and, subsequently, to central district engineer. In June,

W. W. Wagner

1946, he was appointed district engineer at Chicago, which post he held at the time of his recent advancement.

Mr. Wagner joined the firm in 1940, and in February, 1946, was appointed service engineer at Chicago. He was holding the latter position at the time of his latest promotion.

The **Ansul Chemical Company** has announced the opening of a new district office in Knoxville, Tenn. **Joseph F. Ziemann** and **Troversce F. Schmidt** will direct the work of the new office.

The **Hyster Company** has announced the appointment of the **McCall-Boykin Company,** Calvert and 20th streets, Baltimore, Md., as a distributor of Hyster lift trucks, straddle trucks and mobile cranes. The company, headed by **W. S. Boykin,** president, and **John M. McCall,** vice-president, will handle Hyster sales and service in all of Maryland except Washington, Allegany and Garrett counties; in Kent and Sussex counties of Delaware; in Accomac and Northampton counties of Virginia, and in the District of Columbia.

Warren S. Marshall, whose appointment as manager of the newly organized railroad sales department of the **Chicago Steel Service Company** was reported in the *Railway Age* of February 19, was born in Buffalo, N. Y. He completed his schooling at Buffalo Technical

Warren S. Marshall

School and, following service in the Navy during world war I, joined the engineering department of the Lackawanna Steel Company. He later served for 16 years with Joseph T. Ryerson & Son, Inc., first at Buffalo and later at Chicago. Mr. Marshall joined Chicago Steel Service in 1937 as sales engineer.

Bard Browne and **R. J. Van Meter,** vice-presidents of the Superheater Company, which merged with the Combustion Engineering Company to form **Combustion Engineering-Superheater, Inc.,** as reported in *Railway Age* of January 29, page 43, continue as vice-presidents of the new firm.

OBITUARY

Charles L. Hacket, who retired in 1935 as vice-president of the General Railway Signal Company of Canada, died on January 18 in Guernsey, Channel Islands.

Ralph C. Caples, president of the Caples Company, Chicago, New York, Omaha, Neb., and Los Angeles, Cal., advertising agency, died on February 7 at his home in Sarasota, Fla. Mr. Caples was born in Fostoria, Ohio, on December 23, 1872 and was graduated from Princeton University in 1898. In 1908 he became assistant to the vice-president in charge of traffic of the New York Central and, in 1912, was appointed general traffic manager of the Western Maryland. He joined the Willys-Overland Company of Toledo, Ohio, in 1914, as assistant to the president and director of traffic and, in 1921, founded the Caples Company in Chicago.

Arthur J. Boase, manager of the structural and railways bureau of the Portland Cement Association for the past 16 years, died of a heart attack on February 9. He was 56 years old.

ABANDONMENTS

Application has been filed with the Interstate Commerce Commission by:

Florida East Coast.—To abandon its 1.8-mi. Palatka branch from East Palatka, Fla., to Palatka, and operation under trackage rights over 0.79 mi. of Atlantic Coast Line track in Palatka.

Division 4 of the I.C.C. has **authorized:**

New Iberia & Northern.—To abandon operation over a line of the Iberia, St. Mary & Eastern, its lessor, from Garden City, La., to Shadyside, 5.8 mi. Authority to abandon the line was granted to the lessor. Originally, permission was sought to abandon 9.1 mi. between Franklin, La., and Shadyside, a proposal opposed by the Louisiana Public Service Commission and the Railway Labor Executives' Association. The application was thereafter amended to limit abandonment to the Garden City-Shadyside section, in view of franchise arrangements and other concessions obtained from the town of Franklin, and promises of additional traffic from Garden City shippers. There was no opposition to the amended application. The N. I. & N. is a constituent of the Missouri Pacific's Gulf Coast Lines.

CONSTRUCTION

"Q" Seeks I.C.C. Approval of New Chicago-Kansas City Route

The Chicago Burlington & Quincy has applied to the Interstate Commerce Commission for approval of the recently announced plan to shorten its Chicago-Kansas City, Mo., main line by 23 mi. (See *Railway Age* of February 5, page 119.)

In its application, the Burlington seeks to acquire from the Wabash trackage rights between Birmingham, Mo., and Missouri City Junction, 12.57 mi., and to acquire control, by ownership of capital stock and lease of the Kansas City & Brookfield, recently organized to construct a 45.3-mi. section of the proposed new route between Missouri City Junction and Tina Junction, Mo. The application also seeks authority for the K. C. & B. to build this new line.

In support of its application, the Burlington said the shorter route would put it in position to check loss of competitive traffic to other railroads and to secure more freight and passenger business than it now handles between Chicago and Kansas City, also, to develop additional freight traffic to and from intermediate points.

New York, Chicago & St. Louis.—This road has announced plans for relocating and expanding its terminal and yard facilities at Fort Wayne, Ind. A new engine terminal for steam and Diesel-electric locomotives, car repair facilities and additional tracks, estimated to cost approximately $2,000,000, will be constructed on a 50-acre site four mi. east of Fort Wayne, where the Nickel Plate now has 12 mi. of classification tracks. Work is expected to start about May 1 and to be completed about 15 months thereafter. Lynne L. White, president, said the expansion and other improvements were authorized to speed the handling of freight, principally on eastbound trains, between Chicago and Bellevue, Ohio. The new facilities are to include a 130-ft. by 90-ft. enginehouse, a 110-ft. turntable, a sand house, a yard office and locker building, water facilities, a coal dock, a cinder conveyor, car repair facilities and additional tracks. With completion of the new terminal and yard facilities, the Nickel Plate will retain 9 of its 20 tracks leading into the existing terminal and remove the other 11. It is expected the present enginehouse will be retained but used for other purposes.

Pennsylvania.—This road has appropriated funds for installation of an electric moving stairway in its New Brunswick, N. J., passenger station. The new facility will cost an estimated $113,000 and work on its installation will begin as soon as possible after final plans have been approved, bids for its construction received and necessary materials obtained.

Southern.—This road has awarded a contract to the Johnson & Johnson Construction Co., Rome, Ga., for converting part of its Pegram shop building, Atlanta, Ga., into a Diesel-electric locomotive paint shop, at an estimated cost of $41,130. The road's own forces have been authorized to rearrange and extend tracks to provide a 7,500-ft. passing track at Del Rio, Tenn. ($21,540), and a 7,710-ft. passing track at Nocona, N. C. ($31,570). Additional projects, to be undertaken partially by contract and partially by Southern forces, include constructing a 1,500,000-gal. Diesel fuel oil tank and pumping facilities in Inman yard, Atlanta ($52,-

000); constructing a 250,000-gal. Diesel fuel oil tank at Danville, Va. ($20,300); constructing a 100,000-gal. Diesel fuel oil tank and pumping facilities at Selma, Ala. ($26,500); constructing a new spur track for the Burlington Mills and extending the southbound passing track at Hurt, Va., ($25,870), and constructing tracks to serve the Cranston Print Works Company at Fletcher, N. C. ($24,000).

FINANCIAL

Investment House Publications

[The surveys listed herein are, for the most part, prepared by financial houses for the information of their customers. Knowing that many such surveys contain valuable information, *Railway Age* lists them as a service to its readers but assumes no responsibility for facts or opinions they may contain bearing upon the attractiveness of specific securities.]

Baker, Weeks & Harden, One Wall st., New York 5, N. Y.

Chicago & Eastern Illinois (Feb. 1).

Great Northern. Information obtained on recent field trip (Jan. 28).

Northern Pacific. Information obtained on recent field trip. (Jan. 28).

Southern Railway (Feb. 7).

Distributors Group, Inc., Investment Research Department, 63 Wall st., New York 5, N. Y.

[Outlook for] *Railroad Equipment Shares* (Jan. 19).

Dreyfus & Co., 50 Broadway, New York 4, N. Y.

New Wisconsin Central Plan Expected (Jan. 31, No. 175).

Fahnestock & Co., 65 Broadway, New York 6, N. Y.

Outlook for the Railroad Industry (Jan. 31).

R. W. Pressprich & Co., 68 William st., New York 5, N. Y.

The Relative Position of the Market for Railroad Equipment Trust Certificates (Jan. 25).

Smith, Barney & Co., 14 Wall st., New York 5, N. Y.

Northern Pacific Railway Company and *Chicago, Burlington & Quincy Company.* Railroad Bulletin No. 22 (Jan. 26).

Chicago & North Western Railway Company. Railroad Bulletin No. 23 (Feb. 10).

Erie Railroad Company. Railroad Bulletin No. 24 (Feb. 9).

Canadian Pacific.—*New Director.*—N. R. Crump, operating vice-president of this road, has been elected a member of the board of directors to succeed the late George W. Spinney.

Pennsylvania-Wabash.—*Control of D.T. &I.*—The Interstate Commerce Commission has set March 22 as the date for hearing on the application of these roads for authority to acquire control of the Detroit, Toledo & Ironton from the Pennroad Corporation (see *Railway Age* of January 29, page 46). The hearing will be held at Washington, D. C., before Examiners Albus and Eddy.

Union Pacific-Chicago Great Western.—*Joint Use.*—Division 4 of the Interstate Commerce Commission has authorized joint use by these roads on a reciprocal basis of four short segments of track in Leavenworth, Kan. The segments, totaling 1,367 ft., constitute a continuous line, 1,024 ft. of which is owned by the C. G. W. and 343 ft. by the U. P.

New Securities

Applications have been filed with the Interstate Commerce Commission by:

Chesapeake and Ohio.—To assume liability for $5,150,000 of equipment trust certificates, proceeds of which will be applied toward purchase from the American Car & Foundry Co. of 725 70-ton steel hopper cars at $4,350 each and 150 30-ton steel cabooses at $8,760 each; and 10 steam freight locomotives of the 2-6-6-2 type from the Baldwin Locomotive Works at $204,009 each. The certificates would be sold on the basis of competitive bids, and the interest rate would be fixed by such bids. They would be dated March 15 and mature in 10 annual installments of $515,000 each, beginning March 15, 1950.

Chicago, Rock Island & Pacific.—To assume liability for $2,808,000 of series C equipment trust certificates, proceeds of which will be applied toward purchase of 20 Diesel-electric locomotives and 100 covered hopper cars expected to cost a total of $3,757,222, as follows:

	Description and builder	Estimated Unit Cost
10	1,000-hp. Diesel-electric road switching locomotives (Electro-Motive Division, General Motors Corporation)	$102,500
5	1,500-hp. Diesel-electric branch-line locomotives (Electro-Motive)	153,951
3	3,000-hp. Diesel-electric passenger locomotives, each consisting of one 1,500-hp. "A" unit and one 1,500-hp. "B" unit (Electro-Motive)	337,265
2	1,500-hp. Diesel-electric suburban locomotives (Fairbanks, Morse & Co.)	145,336
100	70-ton covered hopper cars (Pullman Standard Car Manufacturing Company)	6,600

The certificates would be sold on the basis of competitive bidding, and the interest rate would be fixed by such bids. They would be dated April 1, and mature in 24 semi-annual installments of $117,000 each, beginning October 1, 1949.

New York Central.—To assume liability for $12,300,000 of equipment trust certificates to finance in part the acquisition of the following equipment:

	Description and builder	Estimated Unit Cost
25	600-hp. Diesel-electric switching locomotives (Electro-Motive Division, General Motors Corporation)	$ 82,550
11	1500-hp. "A" unit Diesel-electric road freight locomotives (Electro-Motive)	178,960
2	1500-hp. "B" unit Diesel-electric road freight locomotives (Electro-Motive)	160,075
31	Stainless steel single bedroom sleeping cars (The Budd Company)	142,575
4	Stainless steel double bedroom-lounge-observation-sleeping cars (Budd)	144,850
3	Stainless steel double bedroom-lounge-observation-sleeping cars (Budd)	149,800
100	70-ton covered steel hopper cars (Pullman-Standard Car Manufacturing Company)	7,200
500	55-ton self-clearing steel hopper cars (Pressed Steel Car Company)	4,650
500	70-ton high-side steel gondola cars (Pullman-Standard)	6,300

Total estimated cost of all equipment is $15,996,085. The certificates would be dated March 15, and would mature in 15 annual installments of $820,000 each, beginning March 1, 1950. They would be sold on the basis of competitive bids and the interest rate would be fixed by such bids.

Southern Railway.—To assume liability for $11,850,000 of series QQ equipment trust certificates to finance in part the acquisition of 95 Diesel-electric locomotives, estimated to cost approximately $15,800,000. The Electro-Motive Division of General Motors Corporation will build 70 of these locomotives, 6 of which will be 2,000-hp. passenger locomotives and 64 will be 1,500-hp. road freight locomotives (39 lead units and 25 booster units). The remaining 25 will be 1,500-hp. road switchers built by the American Locomotive Company. Unit prices were not listed in the application because specifications have not been completed. The certificates would be dated April 1, and would mature in 30 semi-annual installments of $395,000 each, beginning October 1, 1949. They would be sold on the basis of competitive bids and the interest rate would be fixed by such bids.

Division 4 of the I.C.C. has **authorized:**

Atlantic Coast Line.—To assume liability for $10,675,000 of series J equipment trust certificates, the first installment of a proposed $19,350,000, issue, the whole of which will finance in part acquisition of 2,945 freight cars, 18 Diesel-electric locomotives, and 44 passenger-train cars at a total estimated cost of about $21,500,000 (see *Railway Age* of February 5, page 118). The certificates will be dated March 1, and mature in 15 annual installments of $711,000 each, beginning March 1, 1950. The commission's report approved a selling price of 99.37 with a 2½ per cent interest rate—the bid of Halsey, Stuart & Co., and 20 associates, which will make the average annual interest cost approximately 2.61 per cent. The certificates were reoffered to the public at prices yielding from 1.45 to 2.8 per cent, according to maturity.

Texas & Pacific.—To assume liability for $2,250,000 of equipment trust certificates to finance in part the acquisition of five Diesel-electric locomotives at an estimated cost of $3,094,368 (see *Railway Age* of January 29, page 47). The certicates will be dated March 1, and will mature in 10 annual installments of $225,000 each, beginning March 1, 1950. The commission's report approved a selling price of 99.43 for the issue with a 2 per cent interest rate—the bid of R. W. Pressprich & Co. and 4 associates, which will make the average annual interest cost approximately 2.13 per cent. The certificates were reoffered to the public at prices yielding from 1.3 to 2.3 per cent, according to maturity.

Virginian.—To assume liability for $3,800,000 of series A equipment trust certificates to finance in part acquisition of 1,000 hopper cars and 25 cabooses at a total estimated cost of $5,013,518 (see *Railway Age* of January 29, page 47). The certificates will be dated February 1, and mature in 10 annual installments of $380,000 each, beginning February 1, 1950. The commission's report approved a selling price of 99.092 with a 1⅞ per cent interest rate—the bid of Halsey, Stuart & Co. and five associates, which will make the average annual interest cost approximately 2.04 per cent. The certificates were reoffered to the public at prices yielding from 1.3 to 2.25 per cent, according to maturity.

Average Prices Stocks and Bonds

	Feb. 21	Last week	Last year
Average price of 20 representative railway stocks	39.53	40.13	46.67
Average price of 20 representative railway bonds	87.94	87.72	85.26

Dividends Declared

Alabama & Vicksburg.—$3.00, semi-annual, payable April 1 to holders of record March 8.

Canadian Pacific.—75¢, payable March 31 to holders of record February 25.

Chicago, Rock Island & Pacific.—common, 75¢, quarterly; 5% preferred, series A, $1.25, quarterly; both payable March 31 to holders of record March 15.

Erie & Pittsburgh.—7% guaranteed, 85¢ (after deduction of Pa. State tax of 2½¢), payable March 10 to holders of record February 28.

Southern Pacific.—$1.25, quarterly, payable March 21 to holders of record February 28.

Vicksburg, Shreveport & Pacific.—common, $2.50, semi-annual; 5% non-cumulative preferred, $2.50, semi-annual; both payable April 1 to holders of record March 8.

Wabash.—common, $1.00; 4½% preferred, $4.50, annual, both payable April 21 to holders of record March 31.

RAILWAY OFFICERS

EXECUTIVE

W. G. Strohm, whose retirement as vice-president—traffic of the Litchfield & Madison, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of January 1, entered railroad service on February 1, 1903, with the Illinois Central as a yard clerk at Mounds, Ill. In October, 1909, he was promoted to rate clerk in the general office of the I. C. at St. Louis, and in April, 1916, was made chief clerk. He resigned the latter position in April, 1920, to become traffic manager of the St. Louis Gas & Coke Corp. at Granite City, Ill. He joined the L. & M. in February, 1930, as general traffic manager, with headquarters at St. Louis. Mr. Strohm was elected vice-president—traffic, in July, 1947.

Harrell L. Perkins, whose promotion to vice-president of the Central of Georgia at Atlanta, Ga., was reported in the *Railway Age* of January 8, will continue in direct charge of all industrial matters and will perform such other duties as may be assigned to him by the president. Mr. Perkins entered the service of the C. of Ga. on August 1, 1919, as clerk in the office of the auditor of revenue. In 1926 he became clerk in the freight traffic department, and 10 years later was appointed freight service

Harrell L. Perkins

agent at Atlanta. In 1939 he became traveling freight agent at Atlanta, and later that year was appointed general industrial agent. Mr. Perkins served as executive assistant from March 20, 1948, until his recent appointment as vice-president.

Gilbert H. Kneiss, whose appointment as assistant to president—public relations of the Western Pacific at San Francisco, Cal., was reported in the *Railway Age* of December 25, 1948, was born on August 28, 1899, in that city. He was graduated from the University of Nevada in 1928 with a degree in civil engineering, and the next year studied economics in the graduate school of the University of California. He was employed in the engineering department of the Atchison, Topeka & Santa Fe in 1924, and the following year became an engineer and economist with the Standard Oil Company. He was manager of the Audisk Corporation, a producer of

Gilbert H. Kneiss

electrical transcription for radio, from 1932 to 1938, when he was appointed technical director of the railroad exhibitions at both the San Francisco and New York fairs. In 1941 he became assistant district manager of the War Production Board, subsequently serving as district manager and regional priorities manager. After the war, Mr. Kneiss was placed in charge of the veterans' housing program in northern California as district manager of the housing expediter's office, which position he held prior to his recent appointment with the Western Pacific.

J. P. Cowley, whose appointment as vice-president and general manager of the Gulf, Colorado & Santa Fe at Galveston, Tex., was reported in the *Railway Age* of January 15, was born on December 21, 1885, at Schulenburg, Tex., and was graduated from Temple (Tex.) high school and Dallas (Tex.) Business University. He entered Santa Fe service in March, 1904, as a stenographer at Temple and subsequently

J. P. Cowley

held the positions of transportation inspector, trainmaster and superintendent at Galveston, Tex. He has served continuously with that road except for the period from September, 1933, to July, 1934, when he was assistant regional director of railways in the Southwest under the federal coordinator of transportation. In 1939 Mr. Cowley was appointed assistant general manager at Galveston, which post he held at the time of his appointment as vice-president and general manager.

M. J. O'Brien, office assistant to chairman of the board of the Chicago, Milwaukee, St. Paul & Pacific at Chicago, has been appointed assistant to chairman of the board at that point.

FINANCIAL LEGAL & ACCOUNTING

Alfred W. Richmond, whose promotion to assistant auditor of claims for the Canadian Pacific, with headquarters at Montreal, Que., was reported in the

Edwin A. Olson, assistant freight traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, at Chicago, has joined the firm of Libby, McNeill & Libby, food canners, as general traffic manager at Chicago.

Emil E. Nelson, whose retirement as passenger traffic manager of the Northern Pacific at St. Paul, Minn., was reported in the *Railway Age* of January 8, is a native of Lanesboro, Minn. He began his railroad career with the N. P., at St. Paul on March 11, 1901, as secretary to the head of the system's passenger department. He later served

Emil E. Nelson

in the rate department, and as chief clerk in the general passenger department, and was advanced to assistant general passenger agent in the general office in 1912. In 1923 he was transferred to Seattle, Wash., returning to St. Paul in 1927 as assistant passenger traffic manager. Mr. Nelson was promoted to passenger traffic manager in 1928.

Douglas W. Allan, assistant general agent, rail department, Canadian Pacific, at New York, has been appointed general agent at Buffalo, N. Y., succeeding **Walter P. Wass,** who has retired after 43 years of service.

James R. Henderson has been appointed foreign freight agent of the Union Pacific at New York.

M. T. Power has been appointed general freight agent of the Norfolk Southern at Norfolk, Va.

T. L. Bothwell, whose retirement as general freight traffic manager of the Atchison, Topeka & Santa Fe at Chicago, was reported in the *Railway Age* of January 1, was born on October 12, 1888, at Tyler, Tex., and was educated in that city. He entered railway service with the St. Louis Southwestern of Texas as a clerk in September, 1904, and subsequently held similar positions with the Southwestern Freight Bureau, the Panhandle & Santa Fe, the Louisiana & Arkansas, the Texas & Pacific and the Southern Pacific Lines. In July, 1920, he joined the Gulf, Colorado & Santa Fe at Galveston, Tex., as chief clerk in the freight department, becoming assistant general freight agent in

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Fred H. Rockwell, whose appointment as general freight traffic manager of the Atchison, Topeka & Santa Fe at Chicago, was reported in the *Railway Age* of January 1, was born on October 16, 1894, at Williamsfield, Ohio. He began his railway career with the Santa Fe in November, 1917, as a clerk in the audit office at Los Angeles, Cal., and in 1920 was transferred to the freight traffic department at San Francisco,

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Cal. He was subsequently employed in various capacities until June, 1937, when he was appointed assistant general freight agent. He was advanced to assistant to the vice-president—traffic at Chicago in July, 1942, and to acting general freight traffic manager at that point in September, 1948. Mr. Rockwell was holding the latter position at the time of his appointment as general freight traffic manager.

PURCHASES & STORES

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served as storekeeper at Wichita, Kan., Osawatomie, North Little Rock, Ark., McGehee, Ferriday, La., Lake Charles and DeSoto, Mo. In April, 1923, he was appointed assistant to the general purchasing agent and was advanced to assistant general purchasing agent at St. Louis in 1929. Mr. Taylor was serving in the latter position at the time of his promotion to general purchasing agent.

MECHANICAL

C. F. Guggisberg, whose promotion to mechanical superintendent of the Minneapolis, St. Paul & Sault Ste. Marie at Minneapolis, Minn., was reported in the *Railway Age* of January 15, was born on June 16, 1895, and holds a B. S. degree in Mechanical Engineering. He entered railroad service in 1916 with the Duluth, Missabe & Northern at Proctor, Minn., and before and during World War I worked as draftsman for the United States Navy Department at

News Department continued on next left-hand page

Virginian.—To assume liability for $3,800,000 of series A equipment trust certificates to finance in part acquisition of 1,000 hopper cars and 25 cabooses at a total estimated cost of $5,013,518 (see *Railway Age* of January 29, page 47). The certificates will be dated February 1, and mature in 10 annual installments of $380,000 each, beginning February 1, 1950. The commission's report approved a selling price of 99.092 with a 1⅞ per cent interest rate—the bid of Halsey, Stuart & Co. and five associates, which will make the average annual interest cost approximately 2.04 per cent. The certificates were reoffered to the public at prices yielding from 1.3 to 2.25 per cent, according to maturity.

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M. J. O'Brien, office assistant to chairman of the board of the Chicago, Milwaukee, St. Paul & Pacific at Chicago, has been appointed assistant to chairman of the board at that point.

FINANCIAL LEGAL & ACCOUNTING

Alfred W. Richmond, whose promotion to assistant auditor of claims for the Canadian Pacific, with headquarters at Montreal, Que., was reported in the

Railway Age of January 15, was born on August 19, 1892, at Ilford, England. He entered railroad service with the C. P. in April, 1908, as an office boy, and later served as clerk in the freight claim department at Winnipeg, Man., and as clerk at Moose Jaw, Sask. He became claim investigator at Winnipeg in 1912, and was transferred to Van-

Alfred W. Richmond

couver, B. C., in May, 1928. He was made claim investigator and chief clerk at Calgary, Alta., in April, 1931. Mr. Richmond was advanced to freight claim agent at Montreal in March, 1945, the post he held at the time of his promotion to assistant auditor of claims.

William Murphy, whose promotion to freight claim agent of the Canadian Pacific at Winnipeg, Man., was reported in the *Railway Age* of January 15, was born on January 4, 1902, and was educated at Montreal College. He entered railroad service with the C. P. on June

William Murphy

29, 1916, as an office boy at Montreal, Que., and served in various clerical positions at that point from February, 1917, to July, 1923, when he became a junior investigator there. He was appointed senior tracing clerk at Montreal in October, 1925; marine and rail investigator in August, 1933; investigator in December, 1940; and traveling agent in November, 1941. In March, 1945, he was advanced to chief investigator at Montreal, and in January, 1947, was transferred to Vancouver, B. C., as chief clerk. In October, 1947, Mr. Murphy was appointed chief clerk to the freight claim agent at Winnipeg, which position he held at the time of his recent promotion.

Frederick Elder, whose promotion to auditor of claims for the Canadian Pacific at Winnipeg, Man., was reported in the *Railway Age* of January 15, was born on December 14, 1886, in County Tyrone, Ireland. He attended the national schools in that country and entered railroad service in 1902 with the Midland Railway of England, Northern Counties Committee, Ireland. He was first employed by the C. P. in

Frederick Elder

August, 1907, as a clerk in the freight claim department at Winnipeg, and was advanced to freight claim agent at Calgary, Alta., in February, 1912. He served in that position successively at Moose Jaw, Sask., Winnipeg and Montreal, Que., from June, 1913, to December, 1932, when he returned to Winnipeg as freight claim agent. Mr. Elder was appointed assistant auditor of claims at Winnipeg in July, 1936, and served in this post continuously until his recent promotion.

OPERATING

J. N. Landreth, whose appointment as assistant general manager of the Gulf, Colorado & Santa Fe, at Galveston, Tex., was reported in the *Railway Age* of January 15, was born in 1902, at Shady Point, Okla., and began his railroad career at the age of 18, as an operator-agent for the Union Pacific at Denver, Colo. He joined the Santa Fe in 1924 as a telegrapher at Slaton, Tex., and was subsequently employed in various positions on the Slaton division until 1942, when he became trainmaster, serving first at Wellington, Kan., and later at Las Vegas, N. M. Mr. Landreth was promoted to superintendent at Emporia, Kan., in 1946, and was subsequently transferred to Amarillo, Tex., and Winslow, Ariz. He was serving at the latter point at the time of his appointment as assistant general manager.

Halsie Herman Hill, whose appointment as superintendent of the Richmond district of the Atlantic Coast Line at Rocky Mount, N. C., was reported in the *Railway Age* of January 1, was born on January 22, 1905, in Colleton county, S. C. Mr. Hill entered railroad service on April 3, 1926, with the A.C.L., as apprentice foreman, extra gang, at

Halsie Herman Hill

Ridgeland, S. C. The following November he became section foreman at Burrough, Ga., being appointed extra gang foreman, Second division, on January 21, 1930, and roadmaster at Charleston, S. C., on May 1, 1940. Mr. Hill became general roadmaster at Rocky Mount on January 16, 1944, which position he held until his recent appointment.

W. H. Kyle, general superintendent of the Montreal district of the Canadian National at Montreal, Que., has been appointed general manager of the Central region, with headquarters at Toronto, Ont., succeeding **A. J. Lomas,** whose promotion to vice-president of that region was reported in the *Railway Age* of February 19, page 426. **R. Hayes,** general superintendent of the Northern Ontario district at North Bay, Ont., has been transferred to the Montreal district at Montreal. **W. J. Hotrum,** superintendent, Montreal terminals and St. Jerome division, with headquarters at Montreal, has been appointed general superintendent of the Northern Ontario district at North Bay.

Jack E. Kenady, trainmaster of the Tidewater Southern, with headquarters at Modesto, Cal., has been promoted to superintendent at that point.

A. O. Lalonde, assistant superintendent of the Canadian National at Cochrane, Ont., has been promoted to superintendent of the Levis division, at Levis,

Que., succeeding **O. A. Boivin,** transferred. **C. E. Sanschagrin,** transportation inspector of the Central region, has been appointed assistant superintendent of the Laurentian division at Quebec, Que., succeeding **F. E. Carlin,** transferred. **T. H. Ward,** trainmaster at Brantford, Ont., has been appointed assistant superintendent at Lindsay, Ont., succeeding **R. B. Hardy,** who has been appointed superintendent of the Oshawa railway at Oshawa, Ont., replacing **W. J. Riesberry,** transferred. **C. E. Shaver,** terminal trainmaster at Windsor, Ont., has been appointed trainmaster at Brantford, succeeding Mr. Ward.

The New York Central has announced the following changes in the operating department of its Big Four lines: **E. C. Johnson,** assistant superintendent at Toledo, Ohio, promoted to superintendent at Mattoon, Ill., succeeding **H. F. Milligan,** who has retired after 46 years of continuous service; **F. B. Gill,** assistant superintendent at Van Wert, Ohio, transferred to replace Mr. Johnson; **D. B. Fleming,** assistant to the assistant general manager at Indianapolis, Ind., appointed to replace Mr. Gill; **W. D. Schreck,** trainmaster at Terre Haute, Ind., advanced to Mr. Fleming's former post; **J. F. Sullivan,** trainmaster at Indianapolis, appointed to succeed **W. K. Dice,** trainmaster at Anderson, Ind., who replaces Mr. Schreck, and **W. O. Holderby,** assistant trainmaster at Cincinnati, Ohio, promoted to succeed Mr. Sullivan.

TRAFFIC

Oscar W. Cox, general traffic manager of the Norfolk & Western at Roanoke, Va., will retire on March 1 after more than 52 years of service with that road. Mr. Cox was born at Olive Furnace, Ohio, on February 13, 1879, and entered

Oscar W. Cox

the service of the N. & W. on February 14, 1897, serving as telegraph operator and ticket agent at Columbus, Ohio. He transferred to the freight traffic department at Columbus in December, 1899, and, after various promotions, became commercial agent at Toledo, Ohio, in March, 1920. Mr. Cox then went to Roanoke, where he became division freight agent in January, 1922; coal freight agent in June, 1922; general coal freight agent in May, 1925; general freight agent in February, 1927; freight traffic manager in June, 1931, and general traffic manager in April, 1934.

T. B. Duggan, whose retirement as freight traffic manager in charge of rates and divisions for the Missouri Pacific Lines at St. Louis, Mo., was reported in the *Railway Age* of January 1, entered the service of that road in November, 1898, as a clerk in the office

T. B. Duggan

of the auditor of freight receipts at St. Louis. In 1913 he was transferred to the freight traffic department as a clerk and in 1922 was appointed chief clerk to the assistant freight traffic manager. He was advanced to assistant general freight agent in 1929, to assistant freight traffic manager in 1940 and to freight traffic manager in charge of rates and divisions in June, 1944.

Ben G. Spears, general freight agent (sales) of the Minneapolis, St. Paul & Sault Ste. Marie at Minneapolis, Minn., will become assistant freight traffic manager (sales and service) at that point on March 1. Mr. Spears' former post is to be abolished. **A. T. Peterson,** assistant general freight agent at Minneapolis, will be advanced to assistant freight traffic manager at Chicago, succeeding **E. A. Olson,** who is resigning. Mr. Peterson will be replaced by **C. O. Norwick,** district freight agent at Eau Claire, Wis., who in turn is to be succeeded by **J. S. McGogy,** general agent at Thief River Falls, Minn. Mr. McGogy will be replaced by **J. A. Erickson,** traveling freight agent.

Fred C. Furry, whose retirement as assistant freight traffic manager of the Illinois Central, with headquarters at Chicago, was reported in the *Railway Age* of January 15, is a native of Alden, Iowa. He first entered I. C. service on January 2, 1900, in the traffic department at Chicago. After advancing through various clerkships in the general freight office at that point, he was appointed assistant general freight agent at Memphis, Tenn., in July, 1913. He returned to Chicago in the same capacity in September, 1914, and was subsequently advanced to general freight agent there, and later to assistant freight traffic manager.

The Chicago & North Western has announced the following appointments in its traffic department at San Francisco, Cal.: **F. T. Lewis,** general agent, as western traffic manager, freight and passenger departments, with supervision over the San Francisco, Oakland and Sacramento agencies; **C. R. Bair,** district traffic representative, as general agent, freight department, and **W. A. Benjamin,** district passenger representative, as general agent, passenger department. **N. D. Browne,** general agent at Los Angeles, Cal., has been appointed general western agent, freight and passenger departments, with the same headquarters.

Gaylord F. Allen, whose appointment as assistant traffic manager of the Union Pacific at Los Angeles, Cal., was reported in the *Railway Age* of January 1, was born February 26, 1892, at Grand Rapids, Mich., and educated at the Colorado School of Accounting and Business Administration. He entered railroad service in September, 1906, with the Baltimore & Ohio and was employed by the Pittsburgh & West Virginia from 1918 to 1920. He joined

Gaylord F. Allen

the U. P. in October, 1920, as traveling freight and passenger agent at Pittsburgh, Pa., and advanced to freight traffic agent there in 1932. He was further advanced to district freight and passenger agent, with headquarters at Washington, D. C., in August, 1940. Mr. Allen was promoted to general agent at Washington in March, 1942, and in May, 1944, was made general agent, freight department, at San Francisco, Cal. He was serving in the latter post at the time of his appointment as assistant traffic manager.

Edwin A. Olson, assistant freight traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, at Chicago, has joined the firm of Libby, McNeill & Libby, food canners, as general traffic manager at Chicago.

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Emil E. Nelson

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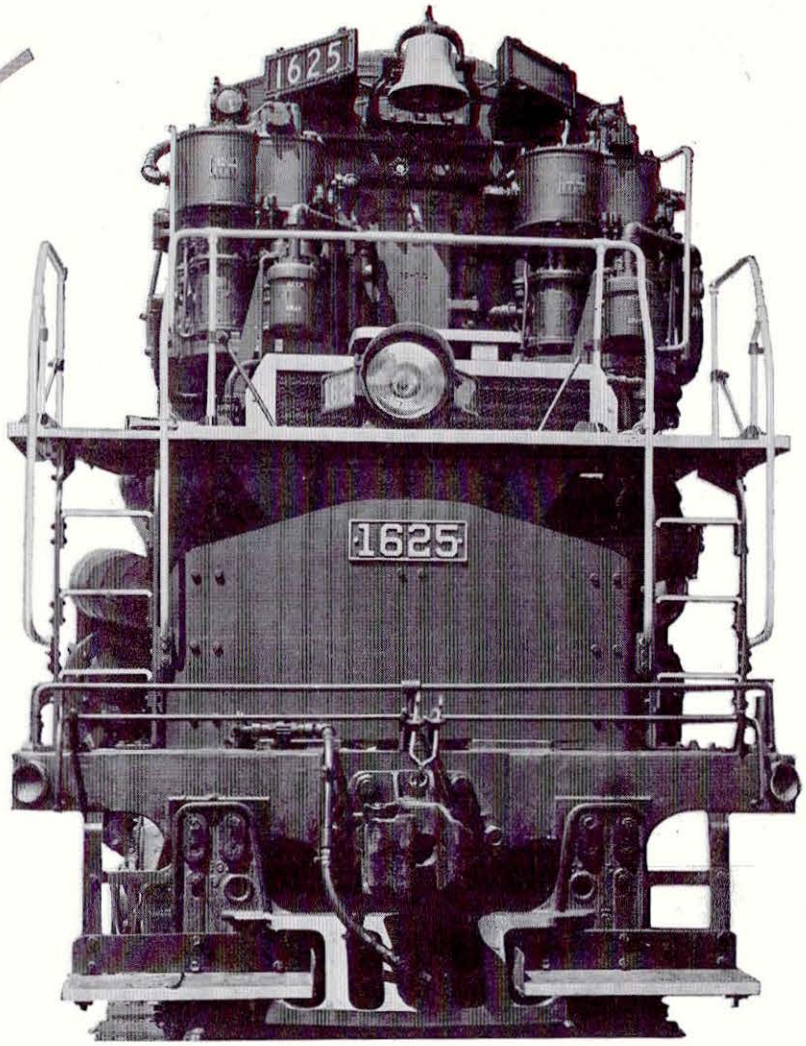
News Department continued on next left-hand page

A unit of POWER



THIS LOCOMOTIVE is a unit of power. It illustrates a significant fact. Where the amount of power that can be packed into a single unit is important — where you want 6000, 8000, even 10,000 horsepower in one engine — the steam locomotive is unchallenged.

We build such locomotives — steam locomotives like this that have developed 8000 horsepower and can do more. We will continue to do so. They are fine pieces of machinery. Modern in every respect, they are establishing remarkable records for economy, reliability and low maintenance.

Don't sell these steam giants short. They have their place — and in their place are unsurpassed.

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DIVISIONS: *Lima, Ohio* — Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio* — Hooven, Owens, Rentschler Co.; Niles Tool Works Co. *Middletown, Ohio* — The United Welding Co.

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Portsmouth, N. H.; the Mobile Shipbuilding Company, Mobile, Ala.; the Todd Shipbuilding Company, Tacoma, Wash., and the Minneapolis Steel & Machinery Co. He was employed by the Soo Line as a draftsman in 1920, and advanced to chief draftsman in 1923. Mr. Guggisberg was appointed mechanical engineer in 1937 and assistant mechanical superintendent at Minneapolis in 1944. He held the latter position at the time of his promotion to mechanical superintendent.

D. Macdonald, whose promotion to superintendent of car equipment of the Atlantic region of the Canadian National at Moncton, N. B., was reported in the *Railway Age* of January 15, was born at Glasgow, Scotland, on March 4, 1886. Mr. Macdonald joined the Canadian National as a plumber's assistant in the Moncton shops, in October, 1904, where he remained until April, 190[illegible], when he

D. Macdonald

left the road. He rejoined the C.N.R. in April, 1907, as a machinist's apprentice at Moncton. After completing his apprenticeship, he again left railway service, but in August, 1912, returned to the C.N.R. as draftsman. He became district car foreman at Moncton in June, 1923, and assistant superintendent car shops in November, 1924, holding the latter position until his recent promotion.

W. M. Martin, master mechanic of the Elgin, Joliet & Eastern at Gary, Ind., has resigned to accept an appointment as assistant mechanical engineer, Association of American Railroads, Mechanical Division, with headquarters at Chicago.

ENGINEERING & SIGNALING

Robert B. Elsworth, whose retirement as signal engineer of the New York Central—Buffalo and East, with headquarters at Albany, N. Y., was reported in the *Railway Age* of January 8, was born on February 14, 1880, at Whitehall, Mich. He was graduated from the University of Michigan in 1905 with a B. S. degree in Mechanical Engineering. In 1934 he also received a degree in Civil Engineering. He entered railroad service in 1901 as a laborer on signal construction work for the Michigan Central (N.Y.C.), remaining with that road until 1906, when he was transferred to signal work on the Grand Central Terminal at New York during the electrification program. In April, 1911, he was appointed assistant signal engineer of the N. Y. C., Buffalo and East, and the Boston & Albany, being promoted in May, 1913, to engineer maintenance of signals, Buffalo and East. When the signal maintenance and engineering departments were combined in March, 1921, Mr. Elsworth returned to his position as assistant signal engineer. In March, 1940, he was promoted to signal engineer.

H. F. Whitmore, chief engineer of the New York, Chicago & St. Louis at Cleveland, Ohio, has been appointed chief engineer of the Wheeling & Lake Erie and the Lorain & West Virginia. A biography and photograph of Mr. Whitmore were published in the *Railway Age* of November 13, 1948, page 921.

Stanley G. Phillips, whose promotion to chief engineer of the Boston & Maine, the Maine Central and the Portland Terminal, with headquarters at Boston, Mass., and Portland, Me., was reported in the *Railway Age* of February 5, was born on February 26, 1895, at Westbrook, Me., and was graduated from the University of Maine in 1917. He entered the service of the Lehigh Valley as a rodman in 1917 and, after serving overseas with the United States Army Engineers from 1917 to 1919, returned to the Lehigh Valley, serving

Stanley G. Phillips

successively as assistant division engineer and track supervisor. In 1929 he was appointed track supervisor on the Central of New Jersey. Mr. Phillips entered the service of the Boston & Maine in November, 1929, as assistant division engineer of the Terminal division at Boston, and in 1939 was promoted to division engineer of that division. He was appointed engineer maintenance of way of the Maine Central and the Portland Terminal on April 15, 1942, and held those positions until his recent promotion.

SPECIAL

John G. Torian, manager of personnel for the Southern Pacific at San Francisco, Cal., will retire on March 1. He is to be succeeded by **John J. Sullivan,** first assistant manager of personnel at that point, who in turn will be replaced by **William D. Lamprecht,** assistant manager of personnel. Mr. Torian was born June 21, 1886, at Lafayette, La., where he attended high school and Southwestern College. He first entered S. P. service with the Texas and Louisiana Lines in 1900 in his home town, where he served as call boy and yard clerk intermittently while attending school. From September, 1906, to January, 1910, he held various clerical positions and served as a brakeman. He subsequently joined the Gulf & Ship Island (now part of the Illinois Central) and served successively with that road in a number of clerical capacities and as transportation inspector, train rules examiner, trainmaster and superintendent. In March, 1917 he was appointed supervisor of wages for the S. P.'s Texas and Louisiana Lines, later becoming inspector of transportation. In September, 1921, he was advanced to assistant to the vice-president and general manager, and in March, 1930, to assistant general manager. In 1937 Mr. Torian was granted a leave of absence to serve on the National Railroad Mediation Board, and in November, 1939, was appointed to the newly-established position of manager of personnel at San Francisco.

OBITUARY

H. N. Huntsman, chief engineer of the Litchfield & Madison at Edwardsville, Ill., died on February 8 at Barnes Hospital in St. Louis, Mo., after a long illness. He first entered railroad service with the Chicago, Burlington & Quincy in the engineering corps, and about three years later joined the Wabash as a division engineer. He served in the latter post for about 14 years and subsequently was associated with a private contracting firm for several years. Mr. Huntsman was in business for himself for six years prior to joining the L. & M. on April 1, 1943.

George C. Jefferis, general manager of the Atchison, Topeka & Santa Fe's Western Lines, at Amarillo, Tex., died in that city on February 21.

Earl Sullivan, assistant general manager of the Missouri Pacific, at St. Louis, Mo., died at the road's hospital in St. Louis on February 17, following a heart attack on February 5.

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OPERATING REVENUES AND OPERATING EXPENSES OF CLASS I STEAM RAILWAYS

Compiled from 127 monthly reports of revenues and expenses representing 131 Class I steam railways.

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF NOVEMBER, 1948 AND 1947

Item	United States		Eastern District		Southern District		Western District	
	1948	1947	1948	1947	1948	1947	1948	1947
Miles of road operated at close of month	226,722	227,310	53,487	53,723	46,091	46,161	127,144	127,426
Revenues:								
Freight	$691,177,269	$625,400,633	$260,871,774	$237,933,601	$137,700,211	$128,319,556	$292,605,284	$259,147,476
Passenger	74,220,264	73,661,385	39,473,571	38,482,052	10,852,094	10,896,017	23,894,599	24,283,316
Mail	18,875,429	13,653,170	6,563,700	4,784,064	3,399,471	2,307,585	8,912,258	6,561,521
Express	7,898,895	11,129,873	2,327,819	3,314,165	1,228,156	1,948,346	4,342,920	5,867,362
All other operating revenues	33,153,955	32,031,032	14,704,597	14,232,386	5,249,613	5,278,204	13,199,745	12,520,442
Railway operating revenues	‡25,325,812	755,876,093	323,941,461	298,746,268	158,429,545	148,749,708	342,954,806	308,380,117
Expenses:								
Maintenance of way and structures	114,252,716	100,738,334	41,073,662	35,955,994	24,100,210	22,218,014	49,078,844	42,564,326
Depreciation	10,454,112	10,278,359	4,419,989	4,386,211	1,829,976	1,758,694	4,204,147	4,133,454
Retirements	1,505,485	1,462,274	607,053	317,610	137,265	351,563	761,167	793,101
Deferred maintenance	*285,225	*813,704	104,021	*39,958	*59,900	*446,696	*329,346	*327,050
Amortization of defense projects	170,635	127,474	21,140	*1,151	59,699	55,242	89,796	73,383
Equalization	238,350	2,108,070	*78,169	1,355,213	886,017	481,461	*569,498	271,396
All other	102,169,359	87,575,861	35,999,628	29,938,069	21,247,153	20,017,750	44,922,578	37,620,042
Maintenance of equipment	146,534,883	134,505,868	61,569,668	57,817,721	29,320,787	26,601,205	55,644,428	50,086,942
Depreciation	21,922,312	19,638,143	8,625,663	7,741,368	4,813,902	4,376,010	8,382,747	7,520,765
Retirements	*50,843	26,396	*15,721	961	*27,366	*1,435	*7,756	26,870
Deferred maintenance and major repairs	*358,275	*191,855	44,000	100,000	*165,531	*64,537	*236,744	*227,318
Amortization of defense projects	1,225,929	1,139,850	452,334	452,260	238,904	239,062	534,691	448,528
Equalization	*345,246	*78,004	*65,689	36,703	*212,522	*113,687	*67,035	*1,020
All other	124,241,006	113,971,338	52,529,081	49,486,429	24,673,400	22,165,792	47,038,525	42,319,117
Traffic	16,672,746	15,261,895	5,821,345	5,302,119	3,512,596	3,305,865	7,338,805	6,653,911
Transportation—Rail line	325,214,372	313,048,664	136,570,688	134,399,128	59,491,771	57,533,376	129,151,913	121,116,160
Miscellaneous operations	10,671,084	10,659,798	4,204,249	4,081,396	1,518,322	1,484,540	4,948,513	5,093,862
General	24,125,861	21,248,027	9,414,377	8,097,856	5,365,914	4,696,409	9,345,570	8,453,762
Railway operating expenses	‡637,471,662	595,462,586	258,653,989	245,654,214	123,309,600	115,839,409	255,508,073	233,968,963
Net revenue from railway operations	187,854,150	160,413,507	65,287,472	53,092,054	35,119,945	32,910,299	87,446,733	74,411,154
Railway tax accruals	90,304,662	80,131,333	30,768,652	26,884,599	18,388,135	18,306,906	41,147,875	34,939,828
Pay-roll taxes	22,267,705	30,519,295	9,182,920	12,665,744	4,255,469	5,958,403	8,829,316	11,895,148
Federal income taxes†	41,338,250	24,558,624	11,371,854	5,186,338	8,452,409	6,961,517	21,513,987	12,410,769
All other taxes	26,698,707	25,053,414	10,213,878	9,032,517	5,680,257	5,386,986	10,804,572	10,633,911
Railway operating income	97,549,488	80,282,174	34,518,820	26,207,455	16,731,810	14,603,393	46,298,858	39,471,326
Equipment rents—Dr. balance	10,274,766	10,683,484	4,781,014	5,074,156	*1,537,334	*1,499,370	7,051,086	7,108,698
Joint facility rent—Dr. balance	3,209,011	3,644,203	1,491,207	1,667,436	490,016	593,718	1,227,788	1,383,049
Net railway operating income	84,065,711	65,954,487	28,246,599	19,465,863	17,799,128	15,509,045	38,019,984	30,979,579
Ratio of expenses to revenues(per cent)	77.2	78.8	79.8	82.2	77.8	77.9	74.5	75.9

FOR THE ELEVEN MONTHS ENDED WITH NOVEMBER, 1948 AND 1947

Item	United States		Eastern District		Southern District		Western District	
	1948	1947	1948	1947	1948	1947	1948	1947
Miles of road operated at close of month	227,015	227,430	53,603	53,730	46,134	46,182	127,278	127,518
Revenues:								
Freight	$7,328,144,907	$6,414,881,139	$2,789,327,632	$2,431,201,116	$1,494,799,487	$1,330,646,622	$3,044,017,788	$2,653,033,401
Passenger	873,631,971	873,870,508	447,002,804	440,103,799	135,565,531	140,092,256	291,063,636	293,674,453
Mail	176,756,791	128,765,932	63,530,010	48,524,086	31,592,214	22,662,014	81,634,567	57,579,832
Express	107,785,216	103,038,299	35,659,963	30,095,098	18,120,765	18,266,337	54,004,488	54,676,864
All other operating revenues	378,703,424	361,771,424	167,370,310	159,402,779	62,384,765	61,112,470	148,948,349	141,256,175
Railway operating revenues	8,865,022,309	7,882,327,302	3,502,890,719	3,109,326,878	1,742,462,762	1,572,779,699	3,619,668,828	3,200,220,725
Expenses:								
Maintenance of way and structures	1,240,336,668	1,108,452,579	461,396,834	405,115,445	258,561,399	241,174,646	520,378,435	462,162,488
Depreciation	114,071,794	111,753,804	48,361,204	47,761,263	19,887,388	19,140,910	45,823,202	44,848,631
Retirements	12,687,873	12,443,992	3,231,553	2,698,603	1,710,753	2,566,455	7,745,567	7,178,934
Deferred maintenance	*3,355,838	*6,096,968	*1,967	*278,342	*1,009,316	*954,724	*2,344,555	*4,863,902
Amortization of defense projects	1,906,702	1,228,847	156,567	72,382	493,169	404,357	1,256,966	752,108
Equalization	*842,810	673,233	*2,464,124	*797,295	1,567,086	674,578	54,228	795,950
All other	1,115,868,947	988,449,671	412,113,601	355,655,834	235,912,319	219,343,070	467,843,027	413,450,767
Maintenance of equipment	1,550,755,011	1,419,382,973	656,938,158	607,880,739	312,890,156	285,822,638	580,926,697	525,679,596
Depreciation	228,696,923	211,351,565	90,213,837	84,691,323	50,692,867	46,725,903	87,790,219	79,934,339
Retirements	*937,671	*455,664	*127,431	*68,120	*266,886	*108,479	*543,354	*279,065
Deferred maintenance and major repairs	*3,346,285	*3,838,325	91,000	347,180	*1,272,985	*1,455,541	*2,164,300	*2,729,964
Amortization of defense projects	13,503,576	13,558,700	4,944,996	5,066,150	2,628,326	2,718,931	5,930,254	5,773,619
Equalization	962,907	923,870	288,227	87,596	694,420	582,931	*19,740	253,343
All other	1,311,875,561	1,197,842,827	561,527,529	517,756,610	260,414,414	237,358,893	489,933,618	442,727,324
Traffic	176,137,346	160,287,596	60,483,879	55,481,115	38,213,962	34,348,379	77,439,505	70,458,102
Transportation—Rail line	3,486,436,364	3,139,727,669	1,475,505,254	1,357,249,462	643,653,697	581,700,394	1,367,277,413	1,200,777,813
Miscellaneous operations	120,481,899	117,292,533	45,820,457	43,770,423	17,740,484	17,073,057	56,920,958	56,449,053
General	248,665,234	222,457,728	94,971,931	85,701,686	54,348,332	48,435,789	99,344,971	88,320,253
Railway operating expenses	‡6,822,812,522	6,167,601,078	2,795,116,513	2,555,198,870	1,325,408,030	1,208,554,903	2,702,287,979	2,403,847,305
Net revenue from railway operations	2,042,209,787	1,714,726,224	707,774,206	554,128,008	417,054,732	364,224,796	917,380,849	796,373,420
Railway tax accruals	946,925,596	855,534,031	322,266,293	284,648,044	210,793,766	194,957,975	413,865,537	375,928,012
Pay-roll taxes	243,351,707	322,293,204	101,046,715	134,602,020	47,664,969	62,855,557	94,640,023	124,835,627
Federal income taxes†	414,651,701	273,452,193	111,027,872	52,088,669	102,847,611	78,231,392	200,776,218	143,132,132
All other taxes	288,922,188	259,788,634	110,191,706	97,957,355	60,281,186	53,871,026	118,449,296	107,960,253
Railway operating income	1,095,284,191	859,192,193	385,507,913	269,479,964	206,260,966	169,266,821	503,515,312	420,445,408
Equipment rents—Dr. balance	122,258,390	117,351,597	55,073,872	52,932,868	*15,227,621	*8,043,487	82,412,139	72,462,216
Joint facility rent—Dr. balance	35,335,420	37,928,776	16,942,569	18,291,389	5,111,944	5,864,965	13,280,907	13,772,422
Net railway operating income	937,690,381	703,911,820	313,491,472	198,255,707	216,376,643	171,445,343	407,822,266	334,210,770
Ratio of expenses to revenues(per cent)	77.0	78.2	79.8	82.2	76.1	76.8	74.7	75.1

†Includes income tax and surtax.
‡Includes $21,253,938 accrued in anticipation of major wage awards.
#Includes $33,860,088 accrued in anticipation of major wage awards.
*Decrease, deficit, or other reverse item.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

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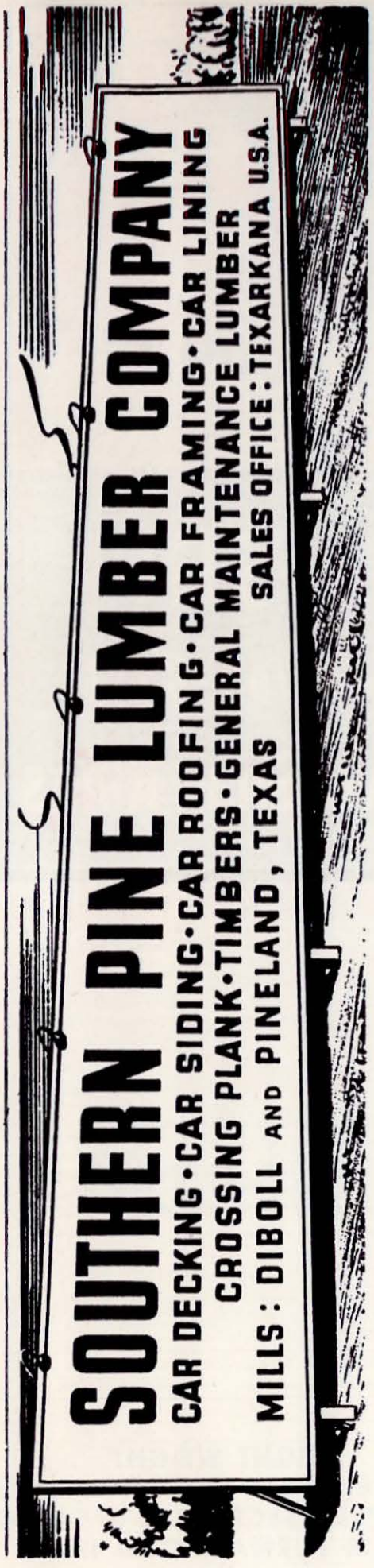
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Publications

ARTICLE IN PERIODICAL

Railroad Buildings. Architectural Record, October, 1948, *pps.* 122-146. *Published by F. W. Dodge Corporation, 119 W. 40th st., New York* 18, *N. Y. Single copies,* $1.

Designated as Architectural Record's Building Types Study No. 142, this article is divided into four parts. The first—The Architecture of Railroads—discusses the various architectural concepts of stations and contains a number of illustrations and drawings of these stations. The second, by I. L. Martin, covers railroad architecture in Europe; the third deals with railroad architecture in North America today, and the fourth describes a small station on an eastern main line. The following criticism appears in the section on railroad architecture in North America today:

"It is the apparent lack of appreciation for architectural design that warrants this article. In preparation for this building types study, the 'Record' contacted all of the major railroad companies, some 65 of them, to check on their plans and their current station building. While it was not surprising that this effort showed that there was no real program of station building, it did turn up a considerable number of new or modernized stations. The distressing thing was the architecture of the current crop of stations, however small. There were, of course, a few excellent stations . . . . Against these there are a dozen or more nondescript imitation temples or imitation hot dog stands or imitation something else, which can only mean complete disregard for station design."

BOOK

Universal Directory of Railway Officials and Railway Year Book, 1948-1949, *compiled from official sources under the direction of the editor of the "Railway Gazette."* 618 *pages. Published by the Directory Publishing Company, Ltd., 33 Tothill st., Westminster, S. W.* 1, *London, England. Price,* 30 *shillings.*

Nationalization of British railways and political and economic changes in many parts of the world have necessitated material revision of the directory section of the present edition. However, it still contains its usual complete listings of individual railroads throughout the world, together with names, titles and addresses of their principal officers. The statistical section, in which appears such useful information as the table of gages, development of world's railway mileage, longest tunnels, steepest grades, etc., has been revised, but without any substantial additions or alterations. There are three indexes—an index to countries, a general index, including all references to railways and statistical and other information, and a personal index of railway officers. In the *Railways Handbook,* 1948-1949, recently issued by the same publisher at five shillings a copy, will be found most of the statistical tables which appear in the "Universal Directory," as well as some of the data on British and Irish railroads.

PAMPHLETS

Capital Formation Under Free Enterprise. 88 pages. Published by the National Association of Manufacturers, 14 W. 49th st., New York 20, N. Y.

In this study the NAM Research Department has set forth the underlying concepts of capital formation and statistical estimates in this field. While the process of capital formation is vital to our growth and economic survival only a few of our leading economists and researchers fully understand it. The NAM believes that this study will promote clearer thinking and a better understanding of the relation of capital formation to our free enterprise system. The needs of capital formation are clearly outlined, as having a direct bearing on our tax system and the basic problems of greater productivity. The study shows that America's fine record of increased productivity and a steadily rising standard of living over the years has been largely due to the setting aside of a considerable portion of our national income for capital formation. During the depression and war years capital formation was greatly retarded and we must now return to the historic rate of capital formation if we are to grow and prosper.

Bus Facts; A Publication of Facts and Figures of the Motor Bus Industry as of December 31, 1947. 82 pages. Compiled and published by the National Association of Motor Bus Operators, 839 17th st., N. W., Washington 6, D. C. Free.

To make the information contained in this 18th edition more readily accessible for reference use, the data have been divided into three broad groups. In the first section are data relating principally to Class I intercity carriers (those having gross operating revenues of $100,000 or over annually). The data presented in the second section relate to the motor bus industry as a whole. Included are data on Class II and Class III as well as Class I companies; on local and suburban carriers; on charter and school bus operations; on industry expenditures for capital outlay and operating supplies; and on bus production by types and seating capacities. In the third section information included in previous editions on the source, distribution and "diversion" of state highway funds, federal automotive excise-tax collections, state gasoline tax rates, state fees on motor buses, state regulations applying to motor bus operation, and size and weight specifications, is brought up to date.

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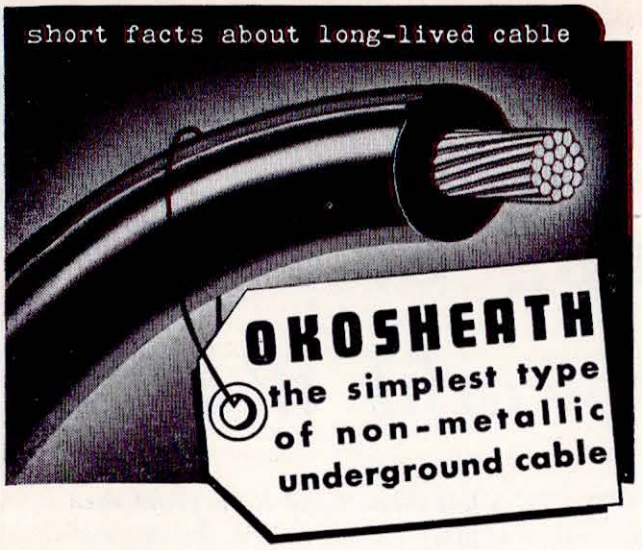

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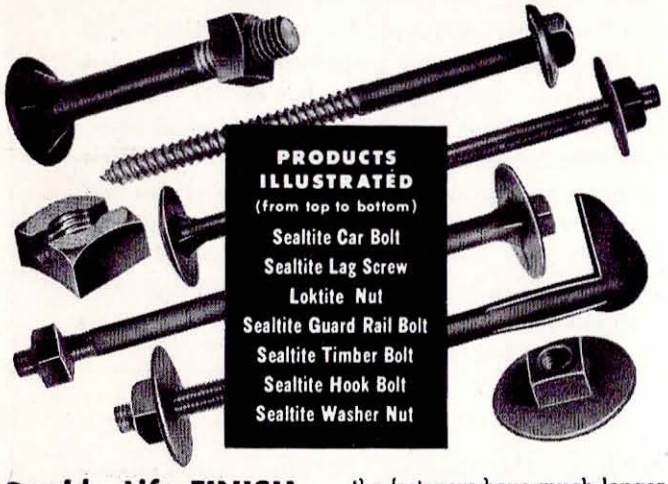

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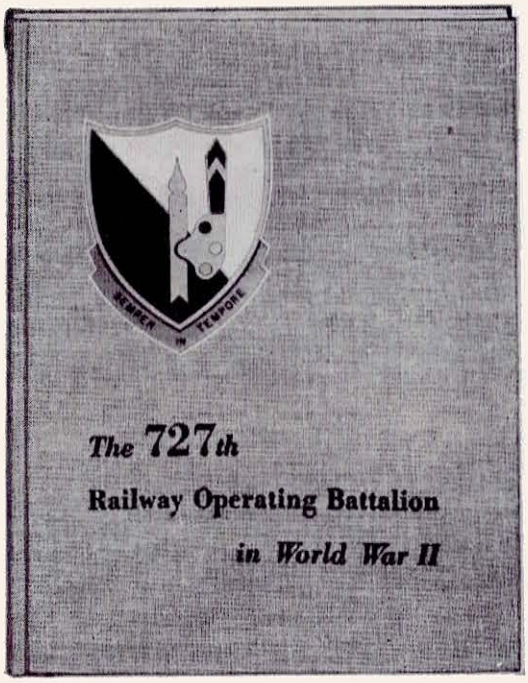

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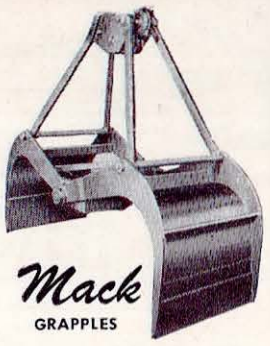

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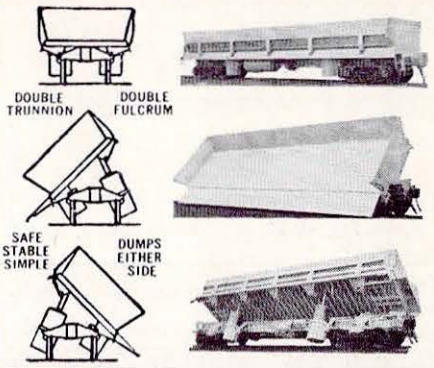

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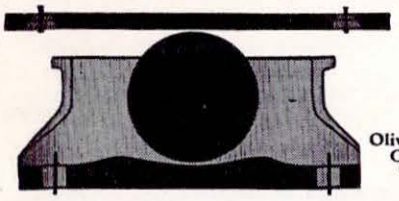

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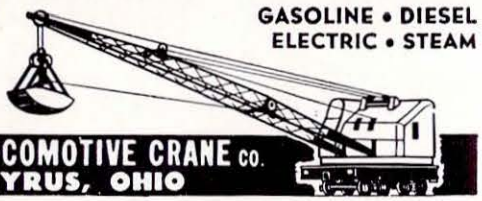

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Advertisers

IN THIS ISSUE

Air Reduction 6
Allied Chemical & Dye Corporation, The Barrett Division 19
American Brake Shoe Company, National Bearing Division 11
American Car and Foundry Company 4, 5
American Steel Foundries 7
American Steel & Wire Company 20, 21
American Throttle Company, Incorporated 65
Angelina County Lumber Company 71
Automatic Electric Sales Corporation 12, 13

Barrett Division, The, Allied Chemical & Dye Corporation 19
Bethlehem Steel Company 3
Bituminous Coal Institute 10

Carey Co., Inc., Thomas F. 72
Carnegie-Illinois Steel Company 20, 21
Classified Advertisements 72, 73
Columbia Steel Company 20, 21

Differential Steel Car Co. 71

Edgewater Steel Company 26
Equitable Equipment Co., Inc. 72

Fairbanks, Morse & Co. 75

General Railway Signal Company ..Back Cover
Get Together Department 72, 73
Gold Car Heating & Lighting Co. 73
Gould Storage Battery Corporation 17
Great Lakes Steel Corporation 18

Hooven, Owens, Rentschler Co. 63
Howell Division, Erman, Luria Steel & Trading Corp. 73
Hunt Company, Robert W. 72
Hunt-Spiller Mfg. Corporation 67
Hyman-Michaels Company 71

Iron & Steel Products, Inc. 72

Lewis Bolt & Nut Co. 69
Lima Hamiltons Corporation 63
Luria Steel & Trading Corp., Erman Howell Division 73

Mack Welding Co. 71
Midland Reclamation Company 72
Minneapolis & St. Louis Railway, The 16

National Bearing Division, American Brake Shoe Company 11
National Tube Company 20, 21
Newhall-Marshall-Wood Incorporated 72
Niles Tool Works Co. 63

Oakite Products, Inc. 69
Ohio Locomotive Crane Co., The 73
Okonite Company, The 69
Orton Crane & Shovel Company 2

Purdy Company, The 71

Railway Educational Bureau, The 73
Remington Rand, Inc. 14
Ryerson & Son, Inc., Joseph T. 74

Scullin Steel Co. 15
Simmons-Boardman Publishing Corporation 70
Southern Pine Lumber Company 68
Stucki Co., A. 73

Tennessee Coal, Iron & Railroad Company 20, 21
Timken-Roller Bearing Company, The, Front Cover

Union Switch & Signal Co. 24
United States Steel Export Company 20, 21
United States Steel Supply Company 20, 21

West Disinfecting Company 71
Westinghouse Air Brake Co. 22
Westinghouse Electric Company 8, 9
Williams Inspection Co., A. W. 72

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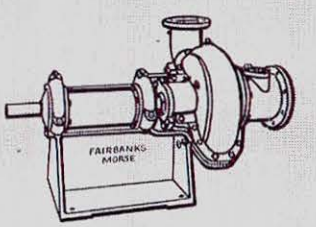
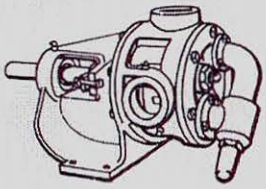
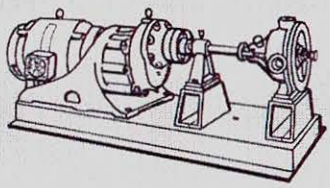


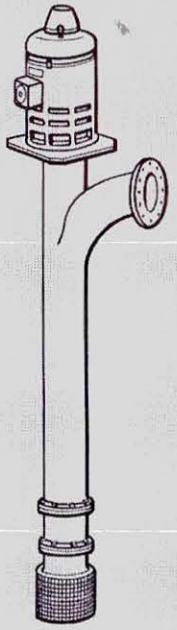
Paper Stock Pumps



Frame Constructed Rotary Pumps

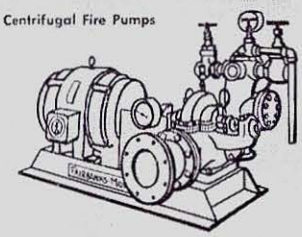


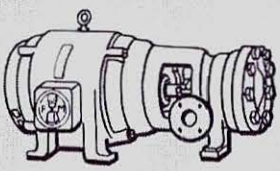
Rotary Pumps with Geared Head Motor Drive



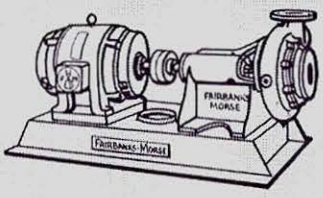
Vertical Propeller Pumps

Centrifugal Fire Pumps

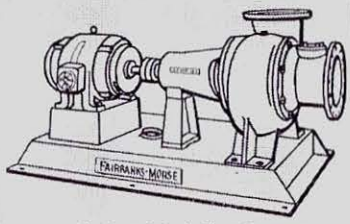




Two-Stage Builtogether Pumps

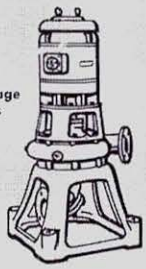


Horizontal Sewage and Trash Pumps

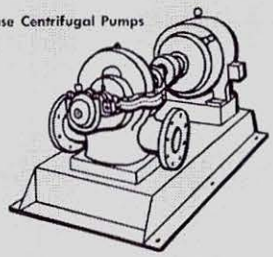


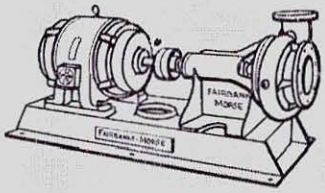
Horizontal Angle Flow Pumps

Vertical Close-Coupled Sewage and Trash Pumps

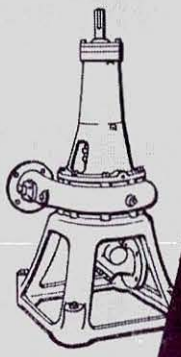


Split-Case Centrifugal Pumps



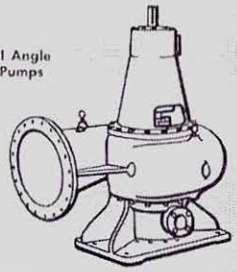


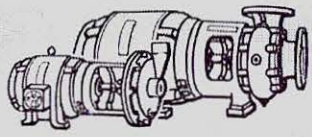
Base-Mounted Centrifugal Pumps



Vertical Sewage and Trash Pumps

Vertical Angle Flow Pumps





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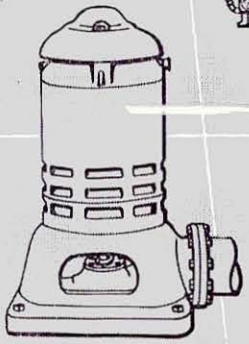
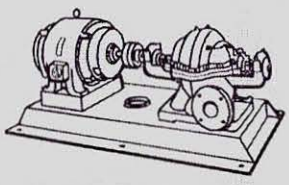
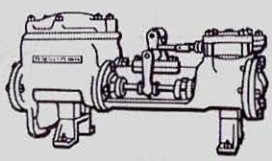


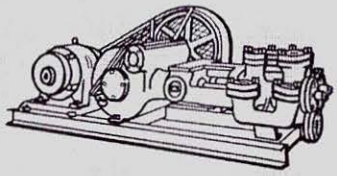
Deep Well Turbine Pumps



Two-Stage Centrifugal Pumps



Duplex Steam Pumps



8 Cover Side-Pot Duplex Power Pumps

for Pumps...

THAT DELIVER

plus performance
lasting dependability
unsurpassed economy

The benefits of using Fairbanks-Morse as the single source for pumps for every water-moving application are well known to railroads the world over. Fairbanks, Morse & Co., Chicago 5, Illinois.

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A name worth remembering

DIESEL LOCOMOTIVES • DIESEL ENGINES • PUMPS • SCALES
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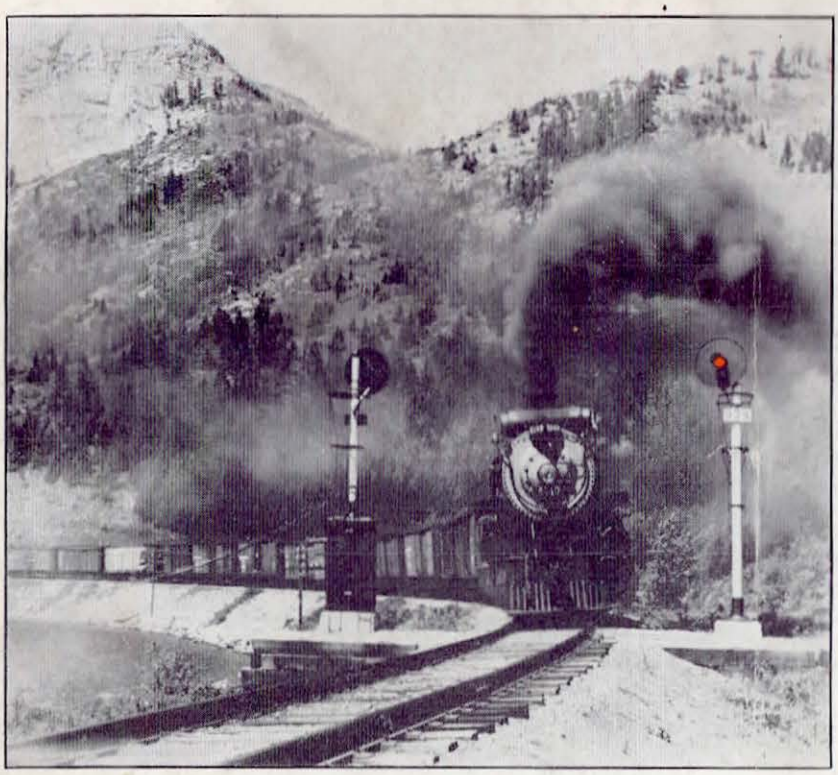
RUNNING TIME CUT 37

Canadian Pacific Installs G-R-S Block Signals in Mountain Cour



G-R-S absolute permissive block signaling, recently installed on 22 miles of single track between Crowsnest, British Columbia, and Burmis, Alberta, is cutting running time and greatly increasing both protection and flexibility of train operation.

Serving the busy Alberta coal fields among the Canadian Rockies, this line handles 50,000 to 75,000 gross tons of freight daily. Besides numerous switching moves, through trains total 18 per day.

This automatic signal system is proving its value in keeping trains moving; in helping to overcome the obstacles of steep grades, sharp curves, heavy snowfalls, and high winds. Here are the main benefits the Canadian Pacific is gaining from this installation:

Cuts Running Time

Former 80-minute running time between Crowsnest and Frank (14.7 miles) now cut to 50 minutes.

More Flexible Train Operation

Permissive signals allow following moves with full signal protection
Manual time blocking eliminated
Less delay when offices are closed
Special provision for switching moves cuts delay to opposing traffic

Increased Protection

Absolute signals prevent conflicting moves
Track circuits protect against broken rails or misplaced switches
Automatic signals provide approach indication for train-order signals

For further information about this installation, see the January 1947 issue of *Railway Signaling*. For further information about automatic block signaling for your road, see your G-R-S district office.

Automatic signals help overcome the stacles of sharp curves and steep gra

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